Service Manual

Datascope
Panorama®

PATIENT MONITORING NETWORK

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NORTH AMERICA

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Service Manual

Datascope
Panorama®

PATIENT MONITORING NETWORK

mindray™
NORTH AMERICA

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Foreword

The Panorama® Service Manual is a guide for technically-qualified personnel who perform maintenance and/or repair on the Panorama Patient Monitoring Network.

The Service Manual conveys system-wide information that is divided into sections. For quick reference, each chapter's title page displays a table of contents that indicates, sectionally, the topics covered.

This publication may have been updated to reflect product design changes and/or manual improvements.

NOTE: Unauthorized servicing may void the remainder of the warranty. Check with the factory or with a local authorized representative to determine the warranty status of a particular instrument.

Warnings, Precautions and Notes

Please read and adhere to all warnings, precautions, and notes listed here and in the appropriate areas throughout this manual.

A **WARNING** is provided to alert the user to potential serious outcomes (death, injury, or serious adverse events) to the patient or the user.

A **CAUTION** is provided to alert the user signaling that special care is necessary for the safe and effective use of the device. They may include actions to be taken to avoid effects on patients or users that may not be potentially life threatening or result in serious injury, but about which you should be aware.

A **NOTE** is provided when additional general information is applicable.

Warnings

WARNING: Do not attempt to use either Panorama® Patient Network or Central Network, including cabling for any purpose other than its intended use.

WARNING: Route cables neatly. Ensure cables are not in the way of patient or hospital personnel.

WARNING: Loading any unauthorized software including utilities on Panorama® Patient Monitoring Network will cause the application to no longer be suitable for medical patient monitoring use.

WARNING: Do not connect or attempt to connect or reconfigure any equipment to Panorama® Central Station Patient Network or Central Network LANS unless authorized in writing. This includes all commercially available networking hardware i.e., switches, routers etc.) or peripherals (i.e., Printers) even if they are the same brand as recommended by the configuration of the system and supplied by the manufacturer.

WARNING: Do not attempt to load any devices or device drivers onto Panorama® Central Station. If the user connects or attempts to connect any equipment Panorama® Central Monitoring System may not operate as intended.

WARNING: Only qualified and trained service personnel or Service personnel should attempt to service equipment. Service is defined as any activity requiring the cover to be removed for internal adjustments, parts replacements, repairs or software upgrades of any kind to insure compatibility.

WARNING: To insure compatibility with the operating system and applications software, use only the supplied and/or approved components to repair any part of the Panorama Patient Monitoring Network. Use of unauthorized software, devices, accessories, or cables other than those approved may render the application unsuitable for medical patient monitoring. It may also result in increased electromagnetic Emissions or decreased Immunity of the system.

WARNING: Do not block or turn down the volume from the maximum position on the speakers provided with Panorama® Central Monitoring System. Set the volume levels so that alarms can be heard at all times, as described in the Operation Manual.

WARNING: Be careful not to turn off patient alarms. Turning off patient alarms can jeopardize patient safety.

WARNING: Do not incinerate batteries, possible explosion may occur.

WARNING: The 18.1" flat panel may tip over, if the display head is inclined to an angle greater than 45°, backward tilt. If the user elects to have the display head inclined to an angle greater than 45°, backward tilt, the flat panel must be attached to a secure mounting surface via three screw locations on the bottom of the base.

WARNING: The Panorama Central Station and the Panorama Telemetry Server must utilize the hospital emergency power system. Failure to do so will result in loss of monitoring during extended periods of power failure. The back-up power time period, for the Panorama Patient Monitoring Network, is limited.

WARNING: Do not put MPSO (Multiple Portable Socket Outlets, i.e., multiple outlet extension cords) used with the Panorama Central Station System on the floor. Connect only Panorama Central Station accessories and components to the same MPSO as the Panorama Central Station. Do not overload MPSOs. Use only MPSOs that comply with the requirements of IEC 60601-1-1.

WARNING: Do not clean the monitor while it is on and/or plugged in.

Precautions

CAUTION: This system is intended for use in a hospital or clinical setting and to be operated by trained and authorized personnel who are acting on the orders of a physician. Its purpose is the real time monitoring of a patient's physiological parameters over an extended time frame.

CAUTION: For proper operation do not obstruct the fan air holes.

CAUTION: For proper operation never place fluids on top of this equipment. In case of accidental spillage, wipe clean immediately and have the system serviced to ensure no hazard exists.

CAUTION: For proper operation do not use Panorama Patient Monitoring Network with a frayed or damaged power cord.

CAUTION: Do not operate Panorama® or any of its components if they have been dropped or the case has been damaged.

CAUTION: Use only the supplied power cords or if a substitute is necessary, only use Hospital Grade power cords.

CAUTION: For proper operation use only approved accessories with this product.

CAUTION: Dispose of single use items in accordance with hospital policy.

CAUTION: Software is written directly to some of the PC boards within the tower. Replacement of the PC boards with off-the-shelf PC boards may compromise the proper operation of the Central Station.

How To Get Help

For U.S., Canada, and Latin America please contact:

Sales Tel: (800) 288-2121
Sales Fax: (800) 926-4275
Sales Tel: (201) 995-8237
Sales Fax: (201) 995-8659
Service Tel: (800) 288-2121
Service Fax: (201) 995-0119

For International Offices, refer to the contact information on the last page of this service manual.

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1.0 *Instrument Description*

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1.1 Introduction

This section of the service manual initially provides a high-level overview of the Panorama® Patient Monitoring Network, followed by more detailed information.

1.1.1 Overview

The Panorama Patient Monitoring Network is a comprehensive patient care monitoring and management system designed for use in a hospital setting. The system is intended to be installed and used in a fixed, non-portable, permanent location that serves as a central data viewing station. The Panorama Patient Monitoring Network consists of the following four primary modules that are linked to and/or by one another:

- Panorama Central Station
- Panorama Central Network
- Panorama Patient Network
- Bedside Monitor

NOTE: Optional modules include ISM telemetry and WMTS telemetry for wireless operation.

Hardware and software components within each module provide system-wide functionality and connectivity.

Patient information is routed to the Panorama Patient Monitoring Network via the four modules. Information is sent across a network provided to and by the Panorama Patient Network and the Panorama Central Network modules. The Panorama Patient Network connects the Passport 2® and Spectrum™ monitors. The monitoring capacity of the system is flexible and uses industry standard components to provide network communications to all connected patient monitors and peripheral devices. The Panorama Central Network connects two or more Panorama Central Stations and/or laser printers.

This service manual focuses on the Panorama Central and Telemetry Server modules since they are the hands-on interface between the medical staff and the Panorama Patient Monitoring Network. The Panorama Central Station module is a combination of both hardware (e.g., Central Station computer and display monitor) and software components (i.e., Panorama software application). Much of the patient information processing and data management occurs within the Central Station.

Panorama® Telemetry

The Panorama Wireless Telemetry Server collects patient data from bedside monitors and/or Ambulatory Telemetry Packs (Telepacks) via ceiling or wall mounted antennas. This allows transport through specifically designated areas of the hospital without disconnecting cables or discharging a patient while transporting that patient from room to room. Patient data is displayed at the Central Station, which is mounted at the nurses' station. The system operates in either the 2.4 GHz Industrial Scientific Medical (ISM) band or the 608 - 614 MHz Wireless Medical Telemetry Service (WMTS) band.

1.1.2 Core Functions

The Panorama Central Station views, records, and recalls the following clinical data:

- Heart rate
- ECG waveforms
- Oxygen saturation
- Invasive and non-invasive blood pressure
- CO_2
- Respiration
- Temperature
- ST segment analysis
- Alarms
- Temperature Blood (Tb)
- Cardiac Output/Cardiac Index (CO/CI)
- Gas Module II

You can configure the Central Station to display up to 16 patients on dual Touch Screen displays. The Central Station's monitor is controlled by a set of menu keys that you activate by:

- selecting a key on the Touch Screen monitor, or
- positioning the cursor over a key and clicking the left mouse button.

When you select a menu key, you receive visual feedback.

NOTE: Monitoring at the Panorama Central Station is automatic and very few user actions are required.

1.1.2.1 Telemetry Interface Module Transceiver (WMTS Only)

The Telemetry Interface Module (TIM) Transceiver collects and processes RF data from the antenna network. The transceiver also provides 9 VDC power to the antenna network.

1.1.3 Connectivity

Each Panorama Central Station incorporates a 16-channel system designed for monitoring up to 16 hospital patients. The data is derived from bedside monitors connected to the Panorama Patient Monitoring Network via the Panorama Patient Network (an Ethernet connection). Patient data is received and processed by the Central Station and displayed on either an LCD or CRT display.

A Hewlett Packard LaserJet printer produces hard copy printouts of the patient data via the Panorama Central Network.

1.1.3.1 Wireless Configuration

The wireless network configuration is remote from the nurses' station. Located in a closet, the Panorama Wireless Telemetry Server collects data from patient monitors via antennas and access points. The equipment listed below is also included in the wireless configuration.

ISM Telemetry

- Instrument transceivers (for bedside monitors)
- Telepack 2.4 (patient worn transmitter)
- A DC power distribution system to provide power for the access points
- Power Over Ethernet (POE) modules to carry DC power to the access points over CAT5 cable
- CAT5 shielded cable used to connect the access points to the Server or switch
- A switch to network the access points together

WMTS Telemetry

- Instrument transceivers (for bedside monitors)
- Telepack 608 (patient worn transmitter)
- TIM Transceivers
- Antenna Network
  - Active Antenna
  - RG6 and/or RG11 coax cable
  - RF Splitters

1.2 Panorama Block Diagrams

The following block diagrams illustrate wired and wireless (ISM, WMTS) configurations for the Panorama Patient Monitoring Network.

1.2.1 Wired

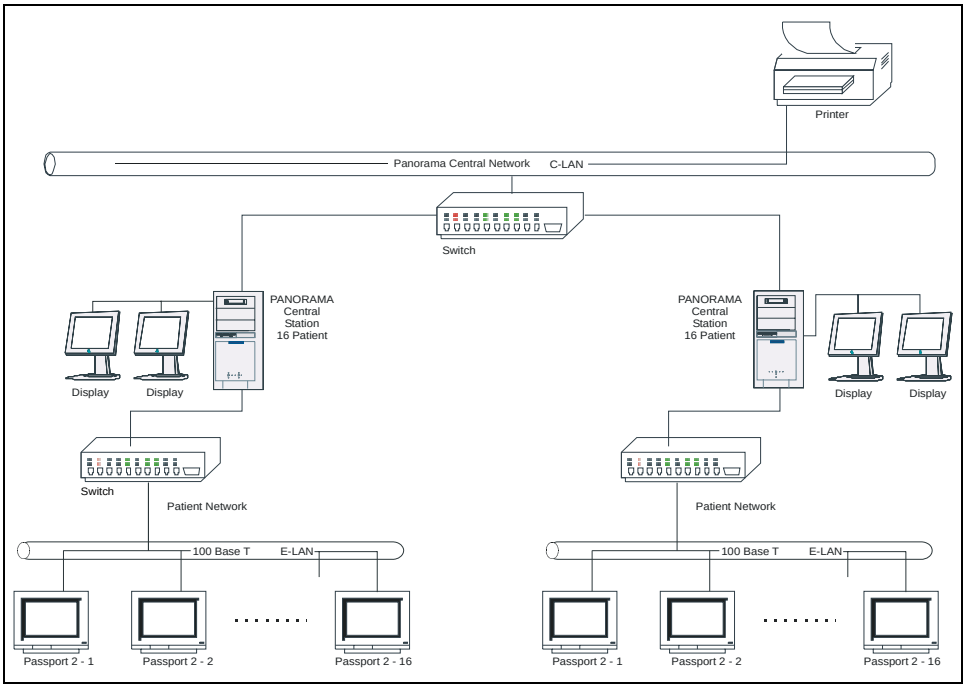

FIGURE 1-1 Panorama Patient Monitoring Network (Wired)

1.2.1.1 ISM (2.4 GHz) Telemetry

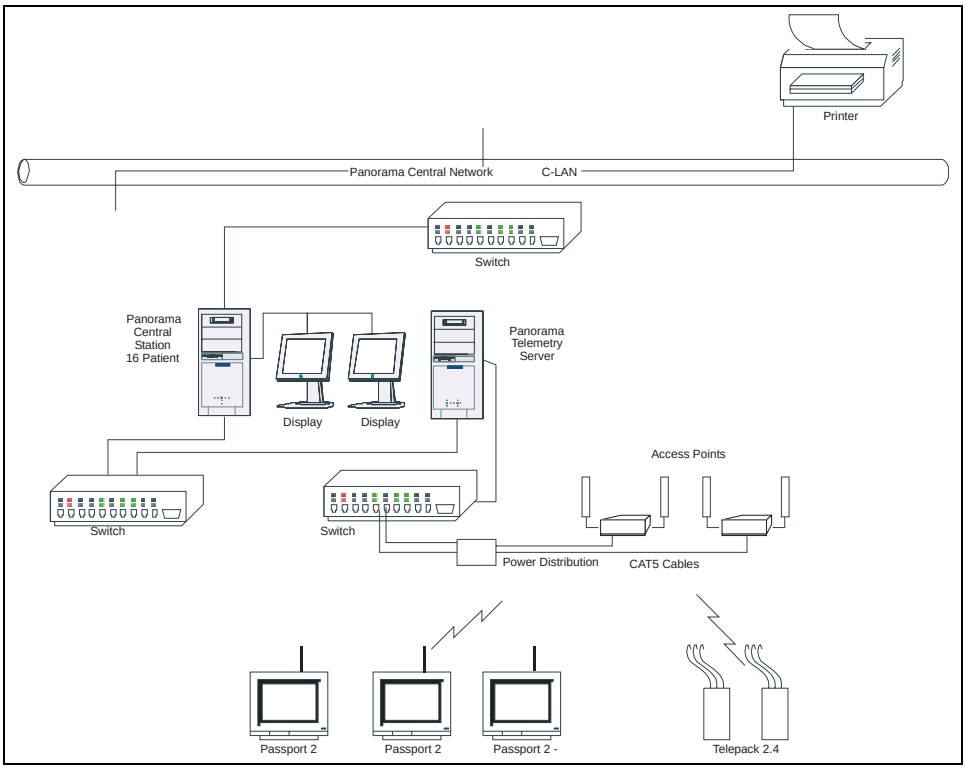

FIGURE 1-2 Panorama Patient Monitoring Network (ISM)

1.2.1.2 WMTS (608 MHz) Telemetry

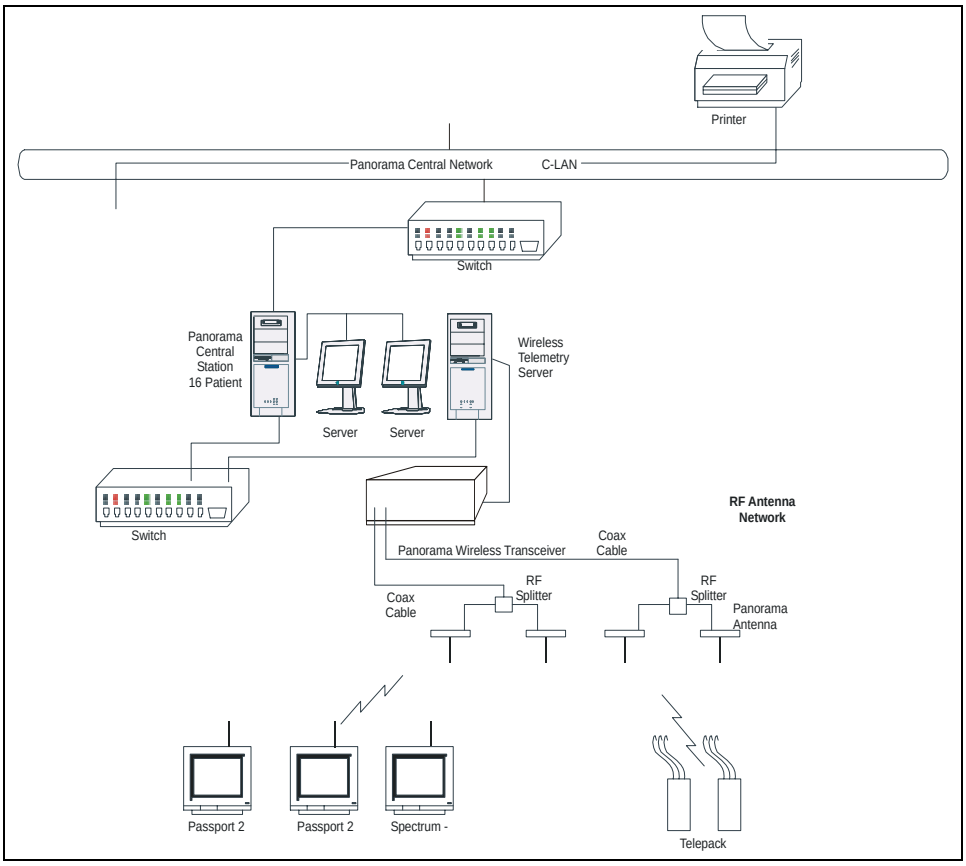

FIGURE 1-3 Panorama Patient Monitoring Network (WMTS)

1.3 System Modules, Components, and Peripherals

1.3.1 Panorama Central Station

The Panorama Central Station contains the Panorama Patient Monitoring Network application software, operating system, patient data processing, and data storage components.

The application software is stored on the system hard drive within the Panorama Central Station. A separate hard drive stores patient historical data.

Monitors (LCD, CRT) provide a graphic display of patient waveforms and other data.

1.3.2 Network Laser Printer

A network laser printer provides ECG Strip and Patient Report printouts. One Panorama Central Station is capable of supporting up to two printers.

The following network printers are approved for use with the Panorama Central Station:

- HP®4050N
- HP4100N
- HP4200N

1.3.3 Keyboard, Video, and Mouse (KVM) Extender

The KVM Extender allows display monitors, speakers, and mouse to be located away from the Panorama Central Station. The KVM Extender consists of a transmitter and receiver connected via CAT5 cable. The transmitter is located at the Central Station location, and the receiver is located at the display monitor location. Data signals are carried by CAT5 Ethernet cable and link the Central Station with the display monitor(s). The extenders can be located up to a maximum of 400 ft. (122 m.) [cable distance] away from the nurses' station.

1.3.4 Network Switches

Switches route data from bedside monitors and telemetry servers and transfer the data to the Panorama Central Station.

Switches facilitate Central Station-to-Central Station communication, and communication to a network laser printer.

1.3.5 Uninterruptible Power Supply (UPS)

UPS provides battery backup during a power outage and limited AC surge protection for all Panorama Central Station components (except for a laser printer).

1.3.6 Speakers

Speakers provide audio from the Panorama Central Station (i.e., they plug directly into the Central Station or the KVM extender).

1.3.7 Access Point (2.4 GHz Telemetry only)

The Access Point collects patient data transmitted from the bedside monitors and telepacks.

1.4 Bedside Monitors

1.4.1 Passport 2® (Monitors)

The Passport 2 monitor is a four-trace vital-signs monitor that can be mounted on a rolling stand, wall mount bracket, or tabletop. You can monitor the following patient parameters:

- ECG, ST (optional)
- Invasive (optional) and Non-Invasive Blood Pressure
- SpO_2
- Respiration Rate
- Temperature, Arrhythmia (optional)
- Gases (optional)
- CO_2 (optional)

For additional information on the Passport 2 monitor, refer to the Passport 2 Operating Instructions manual.

1.4.2 Spectrum™

The Spectrum monitor is a four-trace vital-signs monitor that can be mounted on a rolling stand, wall mount bracket, or tabletop. You can monitor the following patient parameters:

- ECG, ST (optional)
- Invasive (optional) and Non-Invasive Blood Pressure
- SpO_2
- Respiration Rate
- Temperature, Arrhythmia (optional)
- Gases (optional)
- CO_2 (optional)
- 12 Lead ECG (optional) - hardwire only
- Cardiac Output (optional)
- Drug Calcs

For additional information on the Spectrum monitor, refer to the Spectrum Operating Instructions manual.

1.5 Theory of Operation

The Panorama Central Station is a 16-patient channel, medical monitoring system. The station's design and monitor are based on an ATX computer architecture. Basic system data processing configuration includes an ATX computer, a CRT display with Touch Screen, and an Ethernet distribution system.

CAUTION: Software is written directly to some of the PC boards within the tower. Replacement of the PC boards with off-the-shelf PC boards may compromise the proper operation of the Central Station.

1.5.1 Panorama Central Station and Wireless Telemetry Server

Each of the Panorama Central Station's hardware/software items (e.g., hard drives, controls, etc.,) are identified and detailed below. Functionality and connectivity for each component and/or peripheral is mentioned where appropriate. Specified for each is its contribution(s) to either the overall Panorama Patient Monitoring Network and/or to data management operations designated by system architecture for the Central Station module.

Cases are the same for the Central Station and the Telemetry Server with the exception of the network connections. These connections are labeled specifically for telemetry, patient, and central networks.

Software versions 6.X and 7.X are only compatible with the tower case or 4U case.

Software versions 8.X and above are only compatible with the 2U case.

Refer to Figure 1-4 for an internal, side view of the Central Station Tower. Refer to Figures 1-5 and 1-6 for views of the Central Station 2U chassis and wireless telemetry server.

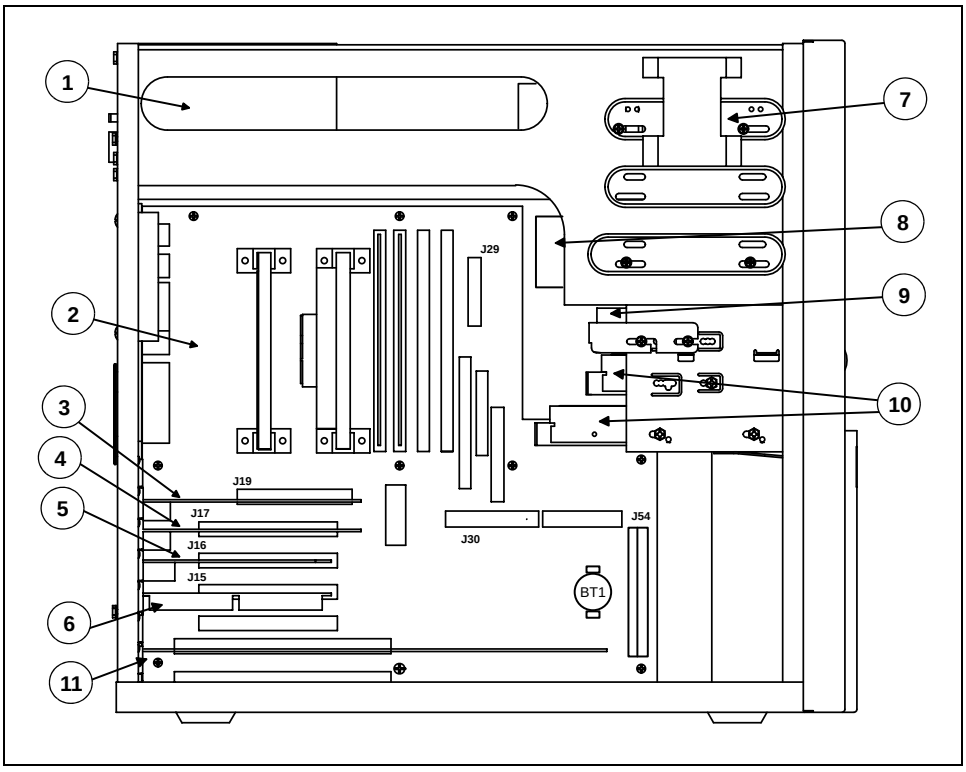

FIGURE 1-4 Panorama Central Station Tower (Internal Side View)

1. Power Supply
2. Motherboard
3. AGP Display Board
4. Serial Touch Screen Board
5. Network Interface Card
6. Raid Controller
7. CD-ROM Drive
8. System Hard Drive
9. Floppy Drive
10. Disclosure Hard Drive(s)
11. TIM PCI Board (WMTS Wireless only)

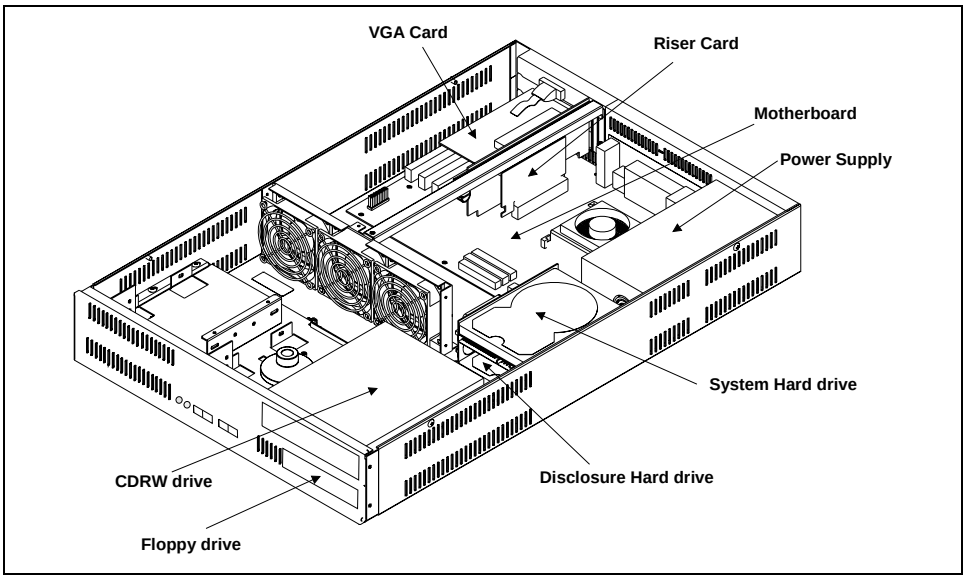

FIGURE 1-5 2U Central Station and View-Only Workstation

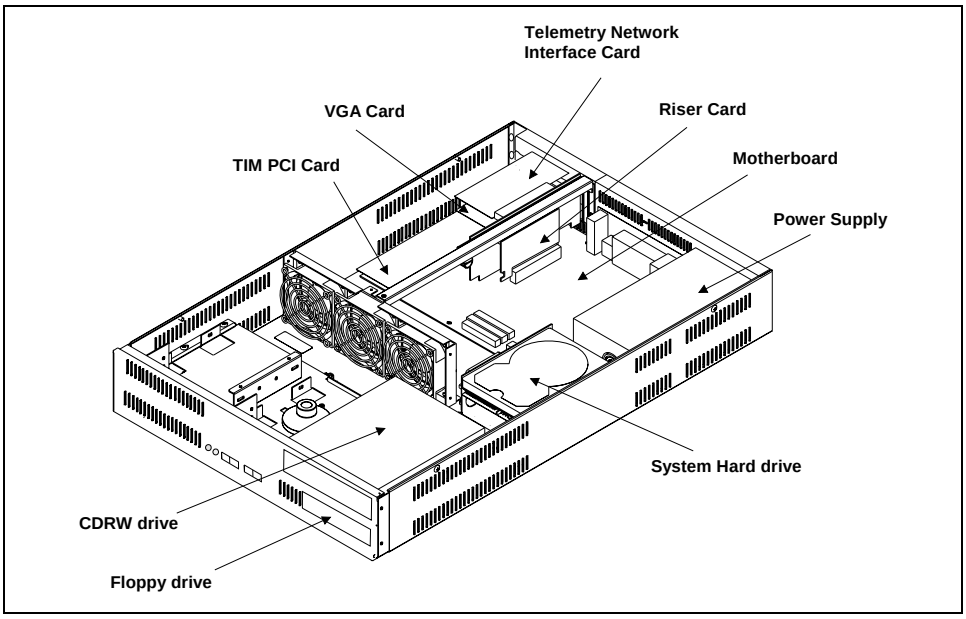

FIGURE 1-6 2U Telemetry Server

1.5.1.1 Motherboard

The motherboard is the physical platform on which the computer's electronic circuitry and processors reside. The computer's Central Processing Unit (CPU) is docked on the motherboard. The CPU executes the Panorama Patient Monitoring Network proprietary software. The following components also reside on the motherboard:

- Random Access Memory (RAM)
- Read Only Memory, Basic Input/Output System (ROM BIOS)
- Associated Processing Logic
- Audio Circuit
- EIDE controller for 3.5" floppy drive and system hard drives
- Patient/Central Network Interfaces
- Mouse and keyboard controllers

1.5.1.2 Connected to the Motherboard via PCI connectors:

- RAID Controller Card (Tower cases and 4U Central Station only)
- Patient Network/Telemetry Network Interface Card (Tower cases, 2U Server and 4U Central Station only)
- Serial Interface Card Tower cases and 4U Central Station only)
- AGP Graphics Display Card (Tower cases and 4U Central Station only)
- TIM PCI Card (Tower Wireless Telementry Servers only)
- Riser Card (2U Central cases and 2U Panorama Telemetry Server only)

1.5.1.3 Connected to the Riser Card (2U Cases only)

- Telemetry Network Interface Card (Panorama Telemetry Server only)
- TIM PCI Card (Panorama Telemetry Server only)
- AGP Graphics Display Card

1.5.1.4 System Hard Drive Assembly

The system hard drive stores the Operating System (Windows NT®) and Panorama application software. It is controlled by EIDE controller circuitry on the motherboard.

1.5.1.5 CD-ROM Drive

The CD-ROM drive is used to load software and to copy error logs. It is housed in a removable drive tray.

1.5.1.5.1 RAID Controller Card (Tower Cases and 4U Central Station only)

The RAID Controller Card sits in the J15 slot on the motherboard. It controls the two (2) disclosure hard drives.

1.5.1.5.2 Panorama Patient Network Interface Card

The Panorama Patient Network Interface Card (NIC) sits in the J16 slot on the motherboard. It provides a 100 Mbps Ethernet interface for the Panorama Patient Network.

1.5.1.5.3 Serial Interface Card (Tower Cases and 4U Central Station only)

The Serial Interface Card sits in the J17 slot on the motherboard. It provides connection to the Touch Screen inputs on the monitors.

1.5.1.5.4 AGP Graphics Display Card

The AGP Graphics Display card sits in the J19 slot on the motherboard. There are two versions of the graphic display card. The first version has two HD-15 connectors. The second version has one DVI connector and one HD-15 connector. The second version requires the use of a DVI-to-HD-15 adapter. These connectors are cabled to the display monitors.

1.5.1.6 ATX Power Supply

The ATX switching Power Supply provides power for all electronic assemblies within the Panorama Central Station. Regulated voltages are +5, -5, +12, and -12 Volts. The power supply has a universal AC input and is rated for 300 Watts (minimum).

1.5.1.7 Disclosure Hard Drives (Central Stations Only)

Tower Cases and 4U Central Stations

Two disclosure hard drives store all patient data. The RAID controller card controls these drives.

2U Central Station

One disclosure hard drive stores all patient data. The IDE controller on the motherboard controls the hard drive.

1.5.1.8 3.5” Floppy Drive

A Diskette Drive is used for running diagnostic software and uploading software. It is controlled by Diskette Drive controller circuitry on the motherboard.

1.5.1.9 Central Station Displays

1.5.1.9.1 LCD Display

All text and graphics are displayed on the LCD screen. The unit is powered from an external AC power supply. Graphics information is transmitted through a graphics cable from an AGP Graphics Card.

1.5.1.9.2 CRT Display

All text and graphics are displayed on the CRT screen. The display assembly contains the cathode ray tube and the associated sweep boards. The unit is powered from the AC line and contains its own fuse. Graphics information is transmitted through a graphics cable from an AGP Graphics Card.

1.5.2 Touch Screen

The Touch Screen consists of a flat glass plate that fits over the face of a CRT or LCD monitor display, and is an integral part of the monitor. The Touch Screen controller is located inside the monitor housing. A DB-9 serial cable connects each monitor to the Serial Interface Card or Serial Port on the Panorama Central Station. The Touch Screen uses surface acoustic wave (SAW) technology.

1.5.2.1 Principles of Operation

Surface acoustic waves (SAW) are mechanical waves that propagate in the surface of the medium in which they are generated. The actual detection and location of a finger touch on a SAW Touch Screen depends on the absorption of a subsection of the Touch Screen's SAW energy by the finger touching the screen.

The Touch Screen creates an absence of SAW energy. SAW energy is coupled to and extracted from the Touch Screen by four identical piezoelectric transducers and a nearly invisible array of fired-on glass-fit acoustic reflector strips around the border of a glass panel.

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2.1 Introduction

This section provides the necessary technical information to perform repairs to the system. The most important prerequisites for effective troubleshooting are a thorough understanding of the system functions and the theory of operation. If necessary, refer to the appropriate Panorama Patient Monitoring Network Operating Instructions Manual (P/N 0070-00-XXXX-XX), which describes instrument functions and features in full detail.

2.2 Safety Precautions

In the event the instrument covers are removed, make certain you observe the following warnings and general guidelines:

- Do not short component leads together.
- Observe proper ANTI-STATIC precautions.

2.3 Equipment and Special Tools Required

You will need the following equipment and/or special tools when performing repairs on the system:

- Anti-Static Wrist Strap
- Anti-Static Mat
- #1 Phillips Screwdriver
- #2 Phillips Screwdriver
- Slotted Screwdriver
- Laptop Computer with 100MB Network Interface Card

2.4 Troubleshooting

The Central Station's components can be separated into four (4) sections:

- Central Station and Displays
- Networks (Central, Patient, and Wireless)
- Bedside Patient Monitors
- Telemetry Devices

During the Central Station's installation process, a configuration sheet was created to list all IP addresses, subnet mask numbers, etc. assigned to the Central Station, Panorama Wireless Telemetry Servers and bedside monitors. Refer to that configuration sheet if you cannot retrieve the information from the Central Station, or Panorama Wireless Telemetry Server. If you do not have the list, contact the Service Representative or Authorized Distributor that installed the system. Make sure you have the serial number of the Central Station or Panorama Wireless Telemetry Server when calling.

Prior to troubleshooting a network problem, you should check the following areas:

- All AC and DC power connections are secure.
- All Ethernet cable connections are secure.
  - Affected cable runs should be tested with a cable tester for continuity.
- IP addresses
  - Valid Patient Network, Central Network and Wireless Network IP addresses should be verified.
- Bedside monitor configurations
  - Wired or wireless configuration should be verified within the monitor's installation menu. Refer to ''Bedside Monitor Communication Configuration'' on page 6-5 of this service manual.
- Central Station configuration
  - Patient and Central network IP address configuration should be verified
  - Equipment assignment/configuration should be verified within the Central Station's Equipment Setup Menu.

2.4.1 Central Station and Displays

The Central Station or display does not come on

1. Verify the power LED on the CRT display is ON.
2. On LCD displays, turn off the power switch and turn it back on. Verify the logo is briefly displayed. If No Signal is displayed on the screen, no video signals are reaching the display.
3. Verify that the cable between the display and the tower is making a good connection, and that the connector screws are tight.
   - If the problem persists, it is likely due to a problem within the tower.

4. Verify that AC power is ON at the Central Station.
5. Reboot the Central Station. Verify that the power and hard drive LEDs are illuminated and the fans are operating.
   - If the display still does not come on, the problem is likely within the tower.
   - If the hard drive LED does not illuminate, the problem is likely related to the CPU or the motherboard.
   - If the fans are not operating, the problem is likely the power supply.

The display comes on but the Central Station does not complete "self-test"

1. Note at which point the unit stopped during the boot-up self-test (e.g., passed through the memory check, CMOS check, Drive check).
   - This may mean replacement of the Network Interface Card, the Mother PCB, or one of the hard drives.

The unit went through self-test, but did not get to the Panorama operating screen. It stays at the blue screen - no desktop icons

1. Clear the error and event logs (contact a Service Representative for instructions) and save the config tool.

The mouse does not function

1. Verify that the connections at the rear of the Central Station are secure and that they are in the appropriate locations.
2. Check connections to the KVM Extender (Transmitter & Receiver).
3. Re-power the KVM by disconnecting AC power from the transmitter and receiver.
4. Reboot the system. Is the mouse functional?
   - If not, install a new PS2 mouse and reboot the system again.
5. Is the mouse functional now?
   - If not, this may mean replacement of the Mother PCB.

No touch screen response

1. Verify that the connections at the rear of the Central Station are secure and that they are in the appropriate locations.
2. Check connections to the KVM Extender (Transmitter & Receiver).
3. Re-power the KVM by disconnecting AC power from the transmitter and receiver.
4. Clean the touch screen panel.
5. Reboot the system. Is the touch screen functional?
   - If not, this may mean replacement of the touch screen monitor or the touch screen controller card.

Laser printer does not print when requested

1. Verify and correct any error messages on the printer's Control Panel LCD.
2. Verify that the printer can print a test page using the printer's control panel menu.
3. Verify that the cable connections are secure between the printer and the Central Station.
   - If there is a direct connection between the Central Station and the printer, verify a crossover patch cable is being used.
   - If a switch is installed, check the cable connections between the switch and the Central Network connector at the rear of the Central Station. Verify the cable connection between the printer and the switch.
4. Verify the LED is illuminated on the network interface card on the laser printer.
5. If a switch is installed, verify that the Power/Self Test LED is on (and green) at the switch. Verify the behavior of the Packet and Status LEDs at the port in which each cable is connected. The Status LED should be on steady green. The Status LED will flash only while there is traffic on that port.
6. If the Status LED is not illuminated, disconnect the cable and plug it into another port. Verify that the Packet and Status LEDs illuminate for the appropriate port.
   - If all of the above are correct, the problem is likely not in the printer.
7. Verify the Central Station's print setup is configured properly. Refer to the Panorama Printer Configuration Guide (P/N 0070-00-0561) for proper configuration of the printer.

2.4.2 Communication Loss From An Individual Bedside Monitor

Wired Network

1. Verify the cable connections between the switch and Central Station, and ensure the connection at the tower is at the Patient Network connector.
2. Verify the Power LED on the switch is illuminated.
3. Verify the Port Status LED is illuminated in conjunction with the port used. If not, disconnect the cable and plug it into another port. Verify the Port Status LED of the new port illuminates.
4. Verify the bedside monitor is connected to the wall jack.
5. Verify the Link LED on the Comm Port on the bedside monitor is illuminated.
   - If the Link LED does not illuminate, it may indicate that the Comm Port is defective.
6. Verify the "V" at the bedside monitor, which indicates communication with the Central Station. See Figure 2-1.

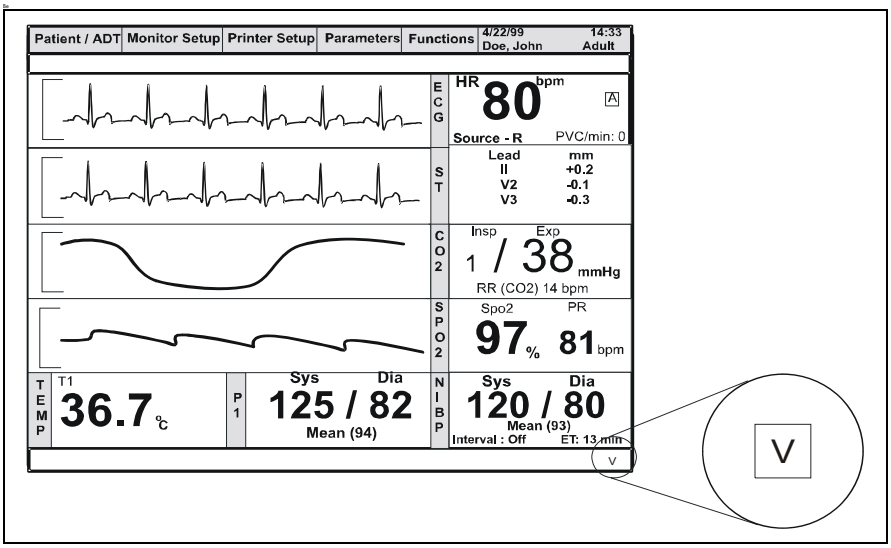

FIGURE 2-1 Bedside Monitor (Wired Network)

Wireless Network (2.4 GHz)

1. Verify that the Radio Icon is displayed on the bedside monitor. The Radio Icon indicates the Radio Card is being detected by the monitor. See Figure 2-2.

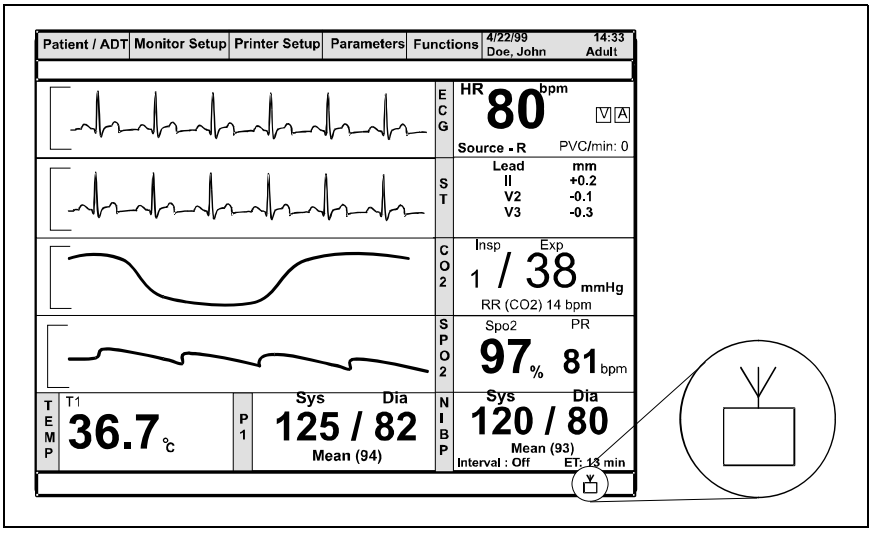

FIGURE 2-2 Bedside Monitor (Wireless)

- If the Radio Icon is not displayed, verify that the bedside monitor is properly configured for the wireless network.
- If the bedside monitor is configured properly, replace the radio card.
- Verify the LED on the Radio card in the bedside monitor is rapidly flashing. This indicates the Radio card is transmitting with the Access Point. If the LED is slowly pulsing in an on/off manner, the Radio card is not communicating with the Access Point.

- Verify the "1" at the bedside monitor. This indicates communication with the Access Point.

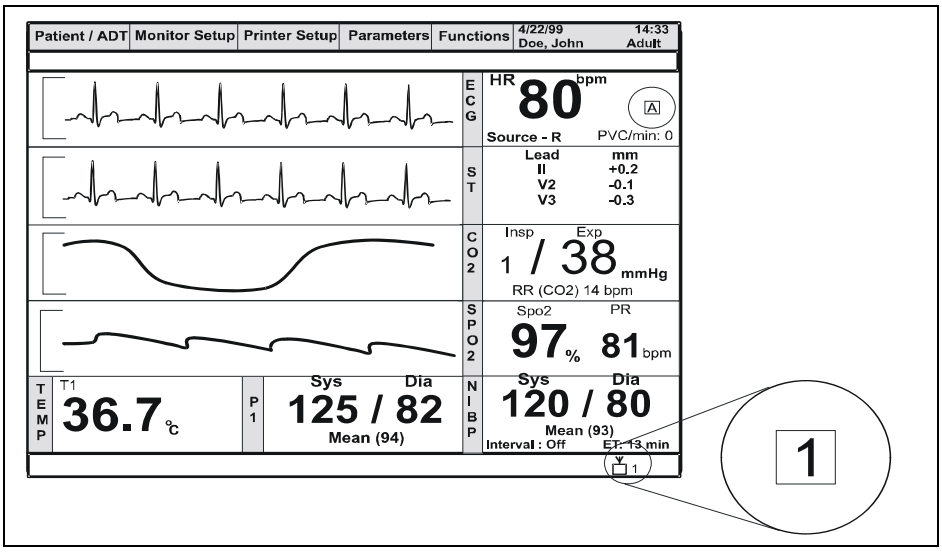

FIGURE 2-3 Bedside Monitor (Wireless)

- The Status LED on the Access Point is blinking on/off. If the LED is steady on, steady off or flashing irregularly, replace the Access Point.
- Verify the Wired and Wireless LAN LEDs on the Access Points. Verify the link LEDs are on steady. Activity LEDs are flashing when there is traffic.
- Verify the Power LED is illuminated on the Power Distribution power supply. Verify 15 VDC at the output of the power distribution system.
- Verify power at the POE Modules at the Access Point and at the Panorama Wireless Telemetry Server locations. Verify the green LED is illuminated. This indicates 15 VDC power to the unit.
- Verify the connection of the CAT5 cable between the POE Module and the Patch Panel.
- Verify the connections between the Patch Panel, the POE Module, the switch, and the Power Distribution/Power Supply. Verify AC and DC power at these units and verify the Status LEDs.
- Verify the correct connections at the Panorama Wireless Telemetry Server. The Patient Network connection is not at the same location on the Panorama Wireless Telemetry Server as it is on the Central Station.

2.4.3 Communication Loss From All Bedside Monitors

Wired Network

1. Verify AC power to the switch(es). Verify the Power and Status LEDs on the switch(es). Re-boot the switch(es).
2. Verify the Status LED for the port connecting the Central Station to the switch.
   - If not illuminated, connect the patch cable to another port on the switch. If the Status LED still does not illuminate, the problem may be with the network card in the Central Station.
3. Verify the LEDs on the Patient Network card on the Central Station.
   - If not illuminated, the network card may be defective.

Wireless Network (2.4 GHz)

1. Verify AC power to the switch. Check the Power and Status LEDs on the switch. Re-boot the switch.

   Connect a display to the Panorama Wireless Telemetry Server. Verify AC power to the Panorama Wireless Telemetry Server.

   Reboot the Server, verify if the power and hard drive LEDs are illuminated and the fans are operating.

   After the reboot, the CB configuration screen should display the following:

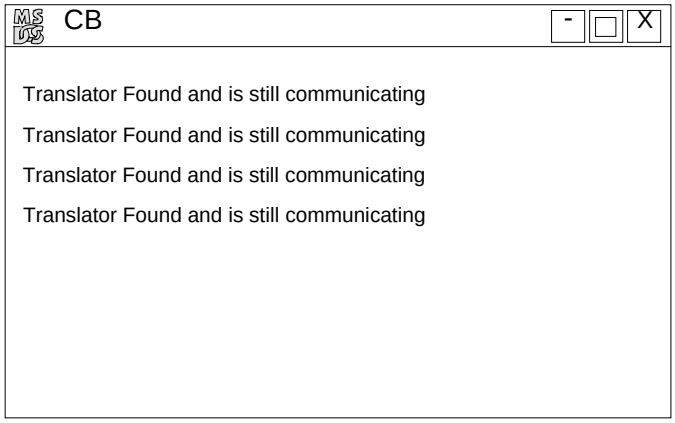
CB
Translator Found and is still communicating
Translator Found and is still communicating
Translator Found and is still communicating
Translator Found and is still communicating

FIGURE 2-4 CB Configuration Screen

This indicates that the Panorama Wireless Telemetry Server is communicating to an Access Point. If nothing is displayed in the window, the Panorama Wireless Telemetry Server is not communicating to any Access Points.

If the display still does not come on, there is a problem within the Server.

- If the hard Drive LED does not illuminate, the problem is likely related to the CPU or the motherboard.
- If the fans are not operating, the problem is likely the power supply.

2. Verify the LEDs on the Telemetry Network card on the Panorama Wireless Telemetry Server.

If not illuminated, the network card may be defective.

3. Verify the Status of the Wireless Network Components.

- The Status LED on the Access Point is blinking on/off. If the LED is steady on, steady off or flashing irregularly, replace the Access Point.
- Verify the Wired and Wireless LAN LEDs on the access Points. Verify the link LEDs are on steady. Activity LEDs are flashing when there is traffic.
- Verify the Power LED is illuminated on the Power Distribution power supply. Verify 15 VDC at the output of the power distribution system.
- Verify power at the POE Modules at the Access Point and at the Panorama Wireless Telemetry Server locations. Verify the green LED is illuminated. This indicates 15 VDC power to the unit.
- Verify the connection of the CAT5 cable between the POE Module and the Patch Panel. Switch the connection at the Patch Panel.
- Verify the connections between the Patch Panel, the POE Module, the switch, and the Power Distribution/Power Supply. Verify power at these units and check the Status LEDs.
- Verify the correct Ethernet cable connections at the Panorama Wireless Telemetry Server.

NOTE: **If all of the verifications are ok, it is possible to "Ping" individual components of the system (e.g., Central Station, bedside monitor, Panorama Wireless Telemetry Server, Access Point). The requirement is a laptop computer with Windows 98SE (minimum) with a 100mega-bit Network Interface Card (NIC). The laptop has to be re-configured with the same structure of Patient, Central, and Wireless Network IP addresses as the Panorama System (e.g., 7.6.6.x, 7.7.7.x and 7.8.8.x). Refer to the configuration list with the IP addresses that was created at the time of installation.**

2.5 WMTS Telemetry

2.5.1 Individual Device (Telepack)

1. Verify the device ID of the Telepack is entered to the Central Station's equipment list.
2. Connect all leads to an ECG simulator and then install two (2) new "AA" batteries into the Telepack.

   Once batteries are installed, verify that the LED display powers up in the following sequence:

   - LA
   - RA
   - All connected leads
   - Link status and battery status

If the device did not power up in the preceding sequence:

1. Press the test button on the transmitter. If the Link Status LED and/or Battery LED do not illuminate, that indicates a fault within the transmitter. The transmitter should be removed from service.
2. If, however, after pressing the test button, the LED display illuminated in the following sequence: LA, RA, LL, then that indicates the transmitter has not been programmed. Refer to the operator's manual 0070-00-0632-XX for instructions on programming the Telepack.

2.5.2 System Wide Problem

Panorama Wireless Transceiver

Check the status LEDs on the Panorama Wireless Transceiver.

If the Fault LED (red) is illuminated, this indicates an internal error has occurred within the TIM. The TIM must be rebooted to clear the error.

If the Power (green) and Configured (yellow) LEDs are not illuminated, check if AC power is connected. If power is connected, disconnect the AC cord and check the fuse in the power entry module. Reboot the Panorama Wireless Transceiver and check the status of the LEDs.

If the Power (green) and Configured (yellow) LEDs are illuminated, check the power LED on the antennas. If the LED is not illuminated on the antennas, this indicates that no 9 VDC is being provided by the Panorama Wireless Transceiver to the antenna grid. Each branch of the antenna grid (Main and Diversity) has its own 9 VDC source. Check the output of each branch at the BNC connector for 9 VDC. If either branch is less than 9 VDC, leave the branch disconnected for a short period of time until the 9 VDC level returns. If the 9 VDC does not return to normal, reboot the Server and measure again.

After rebooting and reconnecting the antennas, the antenna grid again loses 9 VDC, there may be a short in the antenna system or the there is a problem within the Panorama Wireless Transceiver.

2.5.3 Panorama Wireless Telemetry Server

If the Server is configured properly and communicating with the Central Station, the Server displays the following text.

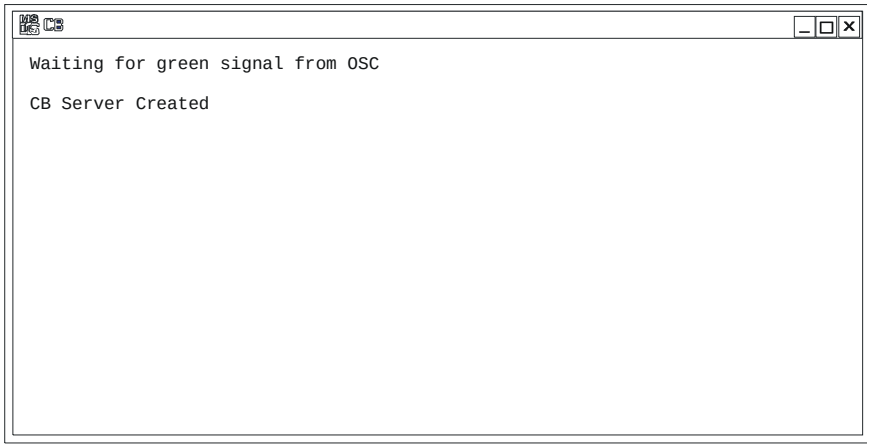

FIGURE 2-5 Confirmation of Server Configuration

If the ''CB Server Created''message does not appear, the Server is not communicating with the Central Station. Check the cabling between the Server and the Central Station. Using a laptop computer, "Ping" the individual devices via the Patient Network (ELAN) to verify proper communication. If an individual device cannot be reached via the LAN, troubleshoot the problem.

If the Panorama Wireless Telemetry Server is communicating with the telemetry devices, and the telemetry devices are properly programmed and assigned to the equipment list, the Server displays the following text.

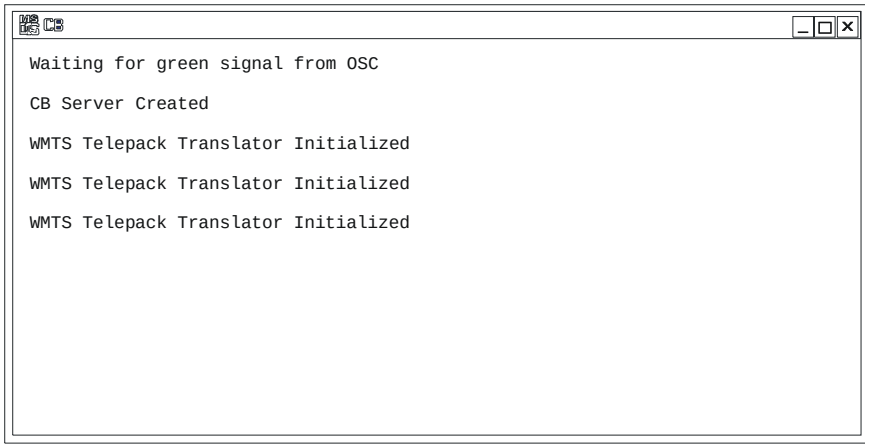

FIGURE 2-6 Confirmation of Communications with Telemetry Devices

If the "WMTS Telepack Translator Initialized" message does not appear, the telemetry device may not be in the Central Station's equipment list or the Server WMTS devices file.

If the telemetry devices are communicating with the Central Station, the Server displays the following text.

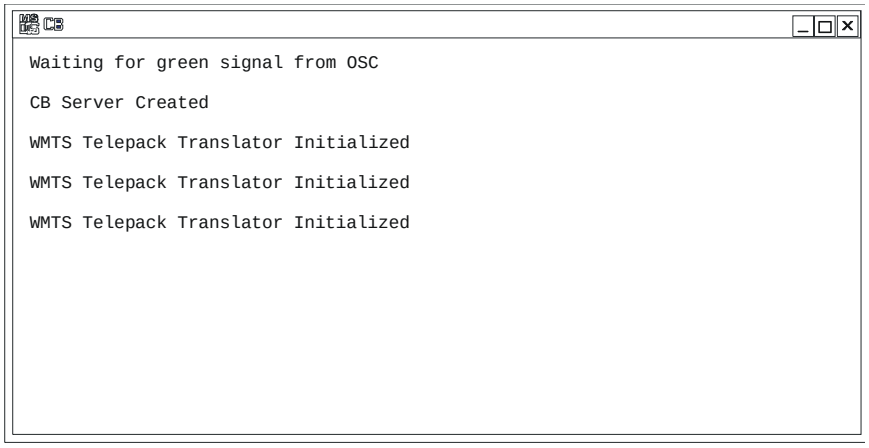

FIGURE 2-7 Confirmation of Communications with Central Station

Verify that each bedside monitor is displayed on the Central Station.

2.6 Disassembly Instructions

This section provides information to assist the technician in disassembly and removal of individual components for replacement.

The monitors and network switches do not contain any user-replaceable parts and are serviced on an exchange or replacement basis.

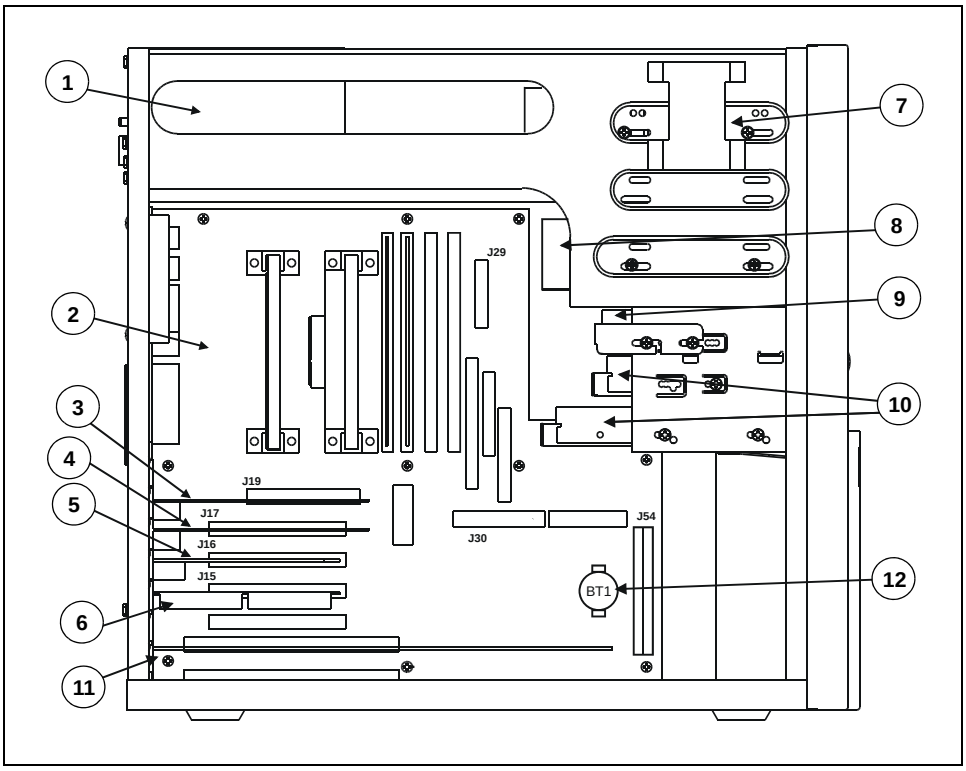

FIGURE 2-8 Central Station Tower (Internal Side View)

1. Power Supply
2. Motherboard
3. AGP Display Board
4. Serial Touch Screen Board
5. Network Interface Card
6. RAID Controller
7. CD-ROM Drive
8. System Hard Drive
9. Floppy Disk Drive
10. Disclosure Hard Drive(s)
11. TIM PCI Board
12. CMOS Battery

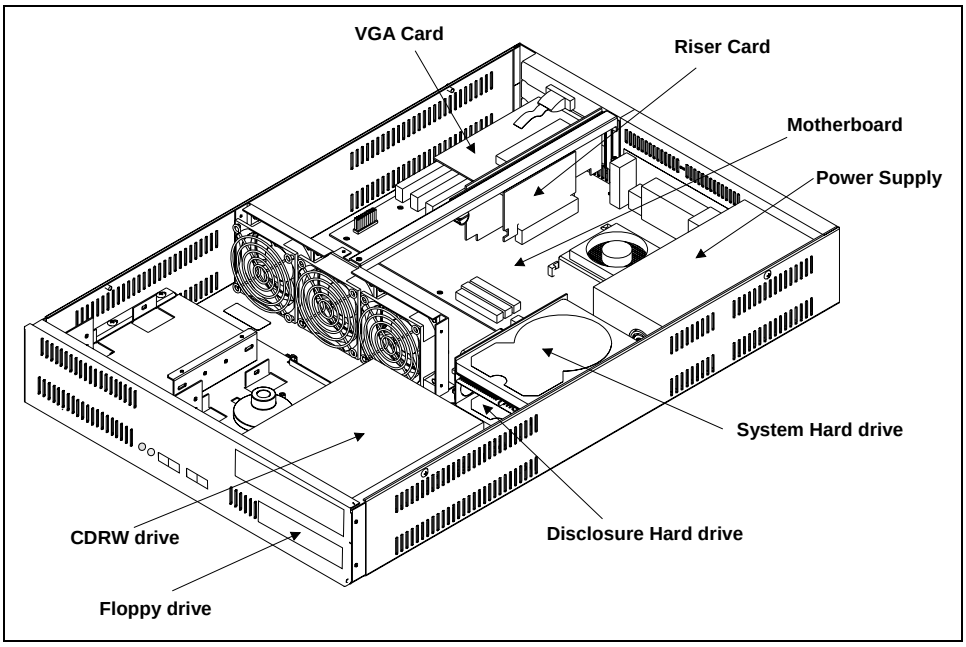

FIGURE 2-9 2U Central Station and View-Only Workstation

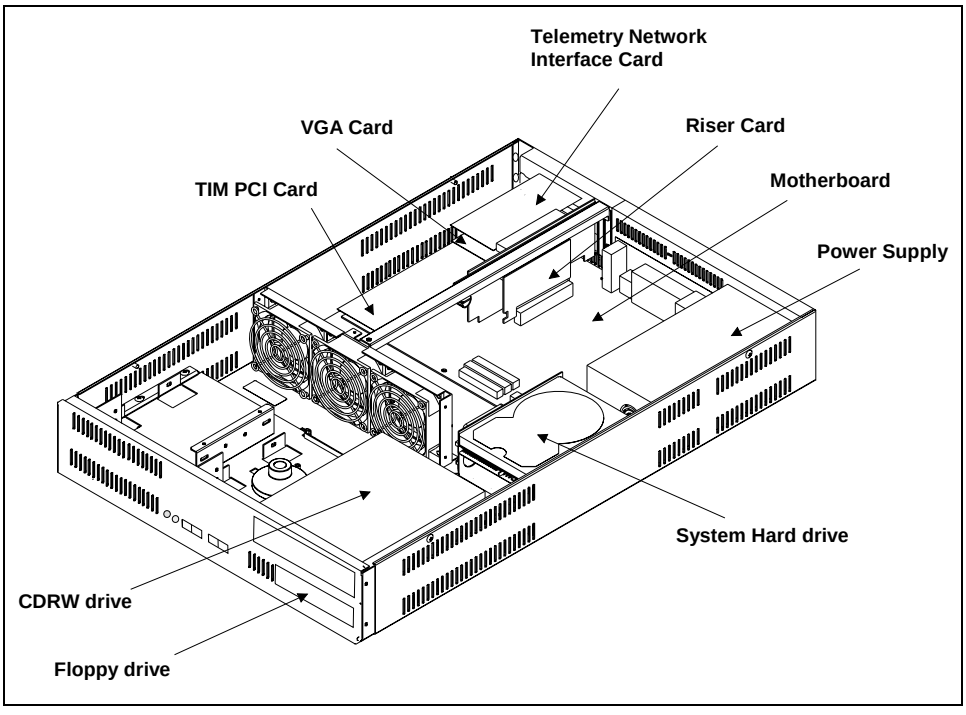

FIGURE 2-10 2U Telemetry Server

2.6.1 Top Cover Removal

Tower Case

1. Depending on the case style, remove the four (4) or six (6) screws on the rear of the Central Station chassis.
2. Slide the cover toward the rear and lift off.

4U Case

1. Remove the thumb screw from the rear of the case.
2. Lift off the top cover.
3. Remove the eight (8) screws securing the cover plate.
4. Remove the cover plate.

2U Case

1. Remove the four (4) screws securing the top cover (2 on each side).
2. Lift off the top cover.

2.6.2 Front Panel Removal (Tower Case Only)

Grab the panel in the opening at the bottom and lift up and away from the chassis.

2.6.3 Power Supply Removal

Tower Case

1. Disconnect the power connector to the motherboard (J29).
2. Disconnect the power connectors from the floppy drive, auxiliary fan, system hard drive, and disclosure hard drives.
3. Remove the four (4) or six (6) screws securing the power supply to the rear of the chassis.

2U Case

1. Disconnect the ATX power connector from the motherboard.
2. Disconnect the DC power connectors from all the hard drives, CD-ROM and floppy drives.
3. Remove the three (3) screws securing the supply to the rear panel.
4. Remove the two screws securing the supply to the inside of the chassis.
5. Remove the power supply. Cut tie-wraps as necessary.

4U Central Station

1. Disconnect the ATX power connector from the motherboard.
2. Disconnect the DC power connectors from all the hard drives, CD-ROM and Floppy drives.
3. Remove the four (4) screws securing the supply to the rear panel.
4. Remove the power supply. Cut tie-wraps as necessary.

2.6.4 PC Board and/or Riser Board Removal

Tower Cases (No Riser Board)

1. Remove the screw securing the board to the chassis.
2. Lift the board out of its PCI or AGP slot.

2U Central Cases

1. Remove the screw securing the board to the chassis. (Use the holes on the side of the chassis to access the screw).
2. Remove the two (2) screws securing the Riser card to the stiffener bar.
3. Remove the screw securing the stiffener bar and lift out the bar.
4. Remove the two (2) screws securing the TIM PCI card to the chassis (WMTS - Wireless Telemetry Server Only).

4U Central Cases

1. Remove the screws securing the retaining bridge and remove the bridge.
2. Remove the screw securing the board to the chassis.
3. Lift out the PC board from the PCI or AGP slot on the motherboard.

Riser Board Removal (Central Stations, View-Only Workstations and Telemetry Servers).

1. Remove the screw for each board attached to the riser board. Use the holes on the side of the chassis to access the screws.
2. Remove each board from the riser.

2.6.5 Auxiliary Fan Removal (Tower Case Only)

1. Disconnect the DC power connector from the power supply harness.
2. Remove the four (4) screws securing the fan to the rear of the chassis.

2.6.6 Motherboard Removal

Pentium II Motherboard

1. Remove the DC power connector (from the power supply) from J29.
2. Remove all PC boards from the PCI and AGP connectors.
3. Disconnect all ribbon cables from the primary IDE (J30), secondary IDE (J31) and Floppy Drive (J27) connectors.
4. Disconnect the Power Switch (J54), HD LED (J54), Reset Switch (J43), Speaker (J54), and Power LED (J54) connectors from the motherboard.

5. Remove the four (4) screws securing the motherboard mounting plate to the chassis. Pull the mounting plate out of the chassis.
6. Remove the ten (10) screws securing the motherboard to the mounting plate.
7. Remove the motherboard from the mounting plate.

Pentium IV Motherboard (2U Central Stations)

1. Remove the DC power connector from J10 on the motherboard.
2. Remove the power connector from J12 on the motherboard.
3. Remove all PC cards from the motherboard and Riser card.
4. Remove the ribbon cables from the IDE1, IDE2 and FDD1 connectors.
5. Disconnect the cables from J20 (System Function Connector).
6. Disconnect the ribbon cables (coming from the serial ports) from J11, J15 and J16.
7. Remove the screws securing the motherboard to the chassis.
8. Remove the motherboard.

2.6.7 System HardDrive Removal

Tower Case

1. Remove the four (4) screws (two on either side) securing the hard drive to the drive rack.
2. Disconnect the power connectors and ribbon cables from the drive(s).
3. Pull the system drive tray out through the front of the chassis.

2U Central Station and 2U Telemetry Server

1. Remove the ribbon and DC power cables from the hard drive.
2. Remove the two screws securing the Hard Drive bracket. Pull the bracket towards the rear of the chassis.
3. Remove the screws securing the hard drive to the bracket. Remove the hard drive.

4U Central Station

1. Remove the ribbon and DC power cables from the hard drive.
2. Remove the four (4) screws from the CDRW and Full Disclosure drive brackets.
3. Remove the two screws securing the Hard Drive bracket. Pull the bracket towards the rear of the chassis.
4. Remove the screws securing the hard drive to the bracket. Remove the hard drive.

2.6.8 Floppy Drive and Disclosure Hard Drive(s) Removal

Tower Case

1. Remove the three (3) screws securing the 3.5-inch drive rack to the front of the chassis.
2. Loosen the screws securing the cable retainer bracket to the hard drive. Remove the cable retainer bracket.
3. Loosen the screws securing the cable retainer bracket to the floppy drive. Remove the cable retainer bracket.
4. Disconnect the power connectors and ribbon cables from the drive(s).
5. Press up on the locking tab and pull the drive rack out through the front of the chassis.

2U Central Station and 2U Telemetry Server

1. Remove the ribbon and DC power cables from the drive(s).
2. Remove the five (5) screws from the CDROM/Floppy Drive bracket.
3. Remove the two (2) screws from the Full Disclosure drive bracket. Slide the bracket towards the rear of the chassis. Remove the bracket from the chassis.
4. Remove the screws securing the drive to the bracket. Remove the drive.

4U Central Station

1. Remove the ribbon and DC power cables from the drive(s).
2. Remove the four (4) screws from the CDROM/Floppy Drive and Full Disclosure drive brackets. Remove the bracket from the chassis.
3. Remove the screws securing the drive to the bracket. Remove the drive.

2.6.9 CD-ROM Drive Removal

Tower Case

1. Remove the four (4) screws (two on either side) securing the drive to the drive rack.
2. Pull the drive out of the drive rack.

2U Central Station and 2U Telemetry Server

1. Remove the ribbon and DC power cables from the drive(s).
2. Remove the four (4) screws from the CDROM/Floppy Drive and Full Disclosure drive brackets. Remove the bracket from the chassis.
3. Remove the screws securing the drive to the bracket. Remove the drive.

4U Central Station

1. Remove the ribbon and DC power cables from the drive(s).
2. Remove the four (4) screws from the CDROM/Floppy Drive brackets. Remove the bracket from the chassis.
3. Remove the screws securing the drive to the bracket. Remove the drive.

2.6.10 Panorama Wireless Transceiver (WMTS Telemetry Only)

Before disassembling the unit, perform the following:

1. Power down the system and disconnect the AC line cord.
2. Remove all interface cables from the rear of the Panorama Wireless Transceiver.
3. Perform all work on a properly grounded, anti-static work area.
4. Discharge the static voltage from your body by wearing a grounded, anti-static wrist strap.
5. Minimize the handling of static-sensitive components.
6. Store static-sensitive components in their original containers or in anti-static bags.

Refer to Figure 2-11 on page 2-19 for component locations.

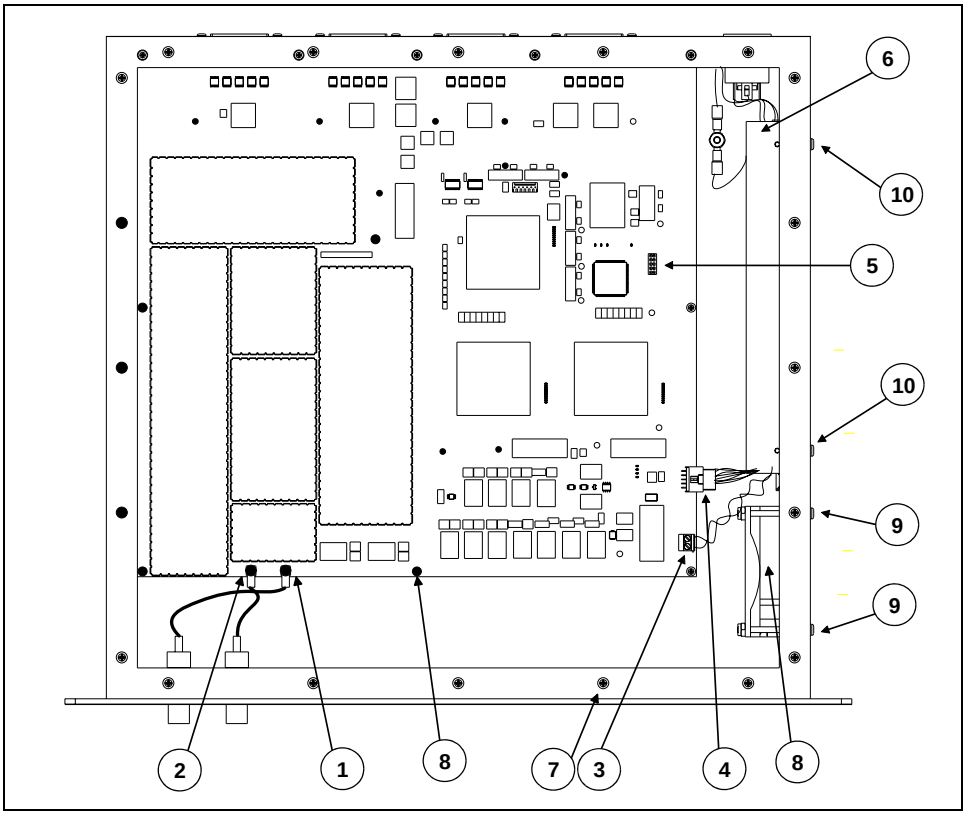

FIGURE 2-11 Panorama Wireless Transceiver Components (Internal Top View)

1. Main RF Connector
2. Diversity RF Connector
3. 9 VDC Connector
4. 5/12 VDC Connector
5. LED Connector
6. AC Input Connector
7. Top Cover Screws (20)
8. TIM PCB Screws (11)
9. Fan Screws (4)
10. Power Supply Screws (4)

Top Cover Removal

1. Disconnect all interface cables from the rear of the Panorama Wireless Transceiver.
2. Disconnect the coax cables from the front of the Panorama Wireless Transceiver.
3. If necessary, remove the Panorama Wireless Transceiver from the equipment rack.
4. Remove the 20 screws securing the top cover. This will expose the Panorama Wireless Transceiver board, power supply, and cooling fan.

2.6.10.1 Fan Removal

1. Remove the four (4) screws securing the fan to the chassis.
2. Disconnect the AC power wires from the fan (quick disconnect tabs).
3. Remove the fan from the chassis.

2.6.10.2 Power Supply Removal

1. Disconnect the AC power input cable from the power supply.
2. Disconnect the 5/12 VDC power connector.
3. Disconnect the 9 VDC power connector.
4. Remove the four (4) screws securing the power supply to the chassis.
5. Remove the power supply from the chassis.

2.6.10.3 Panorama Wireless Transceiver Board Removal

1. Disconnect the LED Connector from the board.
2. Disconnect the Main and Diversity RF connectors from the board.
3. Disconnect the red and black wires from the 9 VDC power connector.
4. Disconnect the 5/12 VDC connector from the board.
5. Remove the 11 screws securing the board to the chassis.
6. Remove the Panorama Wireless Transceiver board from the chassis.

2.7 Assembly Instructions

This section provides information to assist the technician in re-assembling components of the Panorama Wireless Transceiver. If necessary, see Figures 2-8 and 2-9 for reference.

2.7.1 Panorama Wireless Transceiver (WMTS Only)

2.7.1.1 Fan

1. Connect the two (2) black wires to the tabs on the fan.
2. Secure the fan to the chassis with the four (4) screws.

2.7.1.2 Power Supply

1. Secure the power supply to the chassis with the four (4) screws.
2. Connect the AC power input cable.
3. Connect the 5/12 VDC power connector.
4. Connect the 9 VDC power connector.

2.7.1.3 Panorama Wireless Transceiver Board

1. Secure the board to the chassis with the 11 screws.
2. Connect the LED Connector to the board.
3. Connect the Main and Diversity RF connectors to the board.
4. Connect the red and black wires to the 9 VDC power connector.
5. Connect the 5/12 VDC connector to the board.

2.7.2 Central Station and Telemetry Servers

2.7.2.1 Motherboard

Tower Cases, 4U Central Stations and 2U Telemetry Servers

1. Mount the motherboard to the motherboard mounting plate using ten (10) screws.
2. Install the mounting plate into the chassis and secure with four (4) screws.
3. Connect the power connector from the power supply to J29.
4. If necessary, install the microprocessor into U10 and connect the fan into J24 and the four 128 MB SDRAM chips into U16, U17, U18 and U70.
5. Plug in the PC boards into the PCI and AGP slots on the motherboard.
6. Connect the SPEAKER wires (Red/Black twisted pair) to J54- Black to pin 23 and red to pin 26.
7. Connect the POWER LED wire (black and green wires) to J54- Black to pin 17 and green to pin 19.
8. Connect the HARD DRIVE LED wires (black and red wires) to J54 - Black to pin 14 and red to pin 15.

9. Connect the RESET SWITCH wires (white and black wires) to J43 - Polarity does not matter.

10. Connect the POWER SWITCH wires (black and brown wires) to J54 - Black to pin 8 and brown to pin 9.

Verify the four (4) dip switches of SW1 are set as follows: **1- ON, 2-OFF, 3- OFF, 4- ON**.

2U Central Station

1. Secure the motherboard to the chassis using 10 screws.

2. Connect the ATX power supply connector to J10 on the motherboard.

3. Connect the ATX 12 V power connector to J12 on the motherboard.

4. Connect the 40-pin ribbon cable from the CDROM drive to the IDE2 connector.

5. Connect the 40-pin ribbon cable from the hard drives to the IDE1 connector.

6. Connect the 34-pin ribbon cable from the Floppy drive to the FDD1 connector.

7. Connect the ribbon cable from P0 serial port to J15 on the motherboard.

8. Connect the ribbon cable from P1 serial port to J16 on the motherboard.

9. Connect the ribbon cable from the unmarked serial port to J11 on the motherboard.

10. Connect the speaker connector to pins 1-4 (red to pin 1) on J20.

11. Connect the green LED connector to pins 11-13 (green to pin 11) on J20.

12. Connect the power switch connector to pins 7 and 17 (blue to pin 7) on J20.

13. Connect the reset switch connector to pins 9 and 19 (red to pin 9) on J20.

14. Connect the red LED connector to pins 10 and 20 (black to pin 10) on J20.

2.7.2.2 PC Boards

Tower Cases (Pentium II Motherboards)

1. Plug each PC board into its assigned PCI or AGP slot on the motherboard:

- AGP Display Board into J19
- Serial Controller Board into J17
- Network Interface Board into J16
- RAID Controller Board into J15
- TIM PCI Board into J14

2U and 4U Chassis

- Reinstall the riser card.
- Secure the riser card to the chassis with the appropriate screws.
- Plug the individual PC cards into the riser board.
- Refer to Figure 2-12 for proper location of each board.
- Secure each PC card to the chassis with one screw.

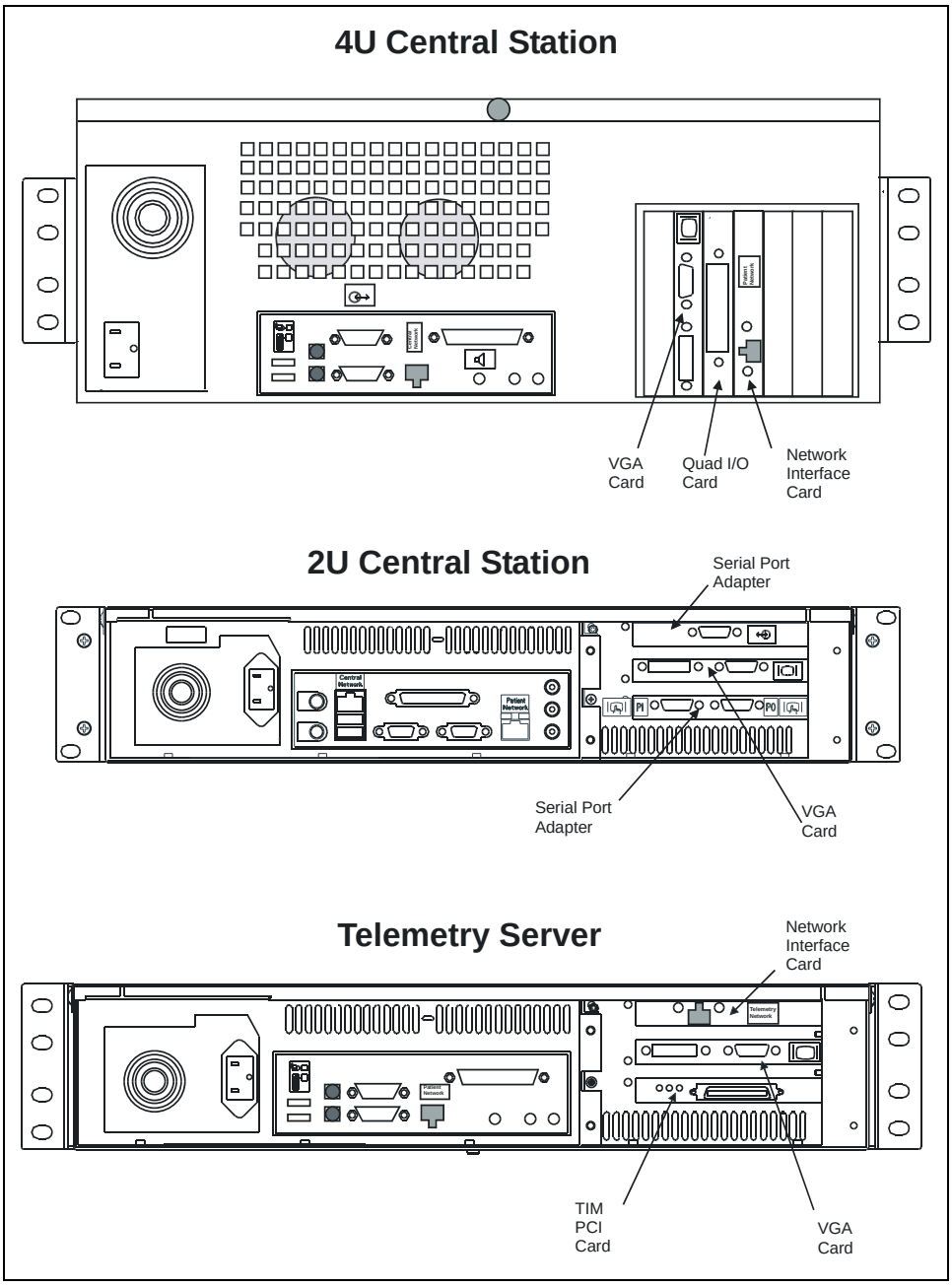

FIGURE 2-12 PC Board Locations

2.7.2.3 Power Supply

Tower Cases

1. Secure the power supply to the rear of the chassis with four (4) screws.
2. Connect the power connector from the power supply to J29 on the motherboard.
3. Plug a power connector onto each hard drive and into the floppy drive.

2U Central and 2U Server

1. Connect the ATX power connector to the motherboard.
2. Connect the DC power connectors to all the hard drives, CDROM and floppy drives.
3. Secure the supply to the inside of the chassis with the two screws.
4. Secure the supply to the rear panel with three screws. Use tie-wraps as necessary to dress the cables.

4U Central Station

1. Connect the ATX power connector to the motherboard.
2. Connect the DC power connectors to all the hard drives, CDROM and floppy drives.
3. Secure the supply to the rear panel with the four (4) screws.
4. Use tie-wraps as necessary to dress the cables.

2.7.3 Drive Replacement

2.7.3.1 Floppy Drive and Disclosure Hard Drive(s)

Tower Cases (Pentium II Motherboards)

1. Install the replacement drive into the drive rack.
2. Connect the power and ribbon cables to the rear of the drive.
3. Slide the drive rack into the front of the chassis. Secure the drive rack with three (3) screws.
4. Connect the power connectors and ribbon cables to the drives.
5. Install a cable retainer bracket to each of the drives.
6. Tighten the screws that secure the cable retainer brackets.

NOTE: After replacement of one or both of the full disclosure hard drives, the Array must be created and formatted. Follow the instructions in section 2.7.7.

2.7.3.2 CD-ROM Drive and System Hard Drive

Tower Cases

1. Install the replacement drive into the chassis.
2. Connect the power and ribbon cables to the rear of the drive.
3. Secure the drive to the chassis with the four (4) screws (two on either side).

2U Central and 2U Server

1. Install the drive into the hard drive bracket and secure with two screws.
2. Install the bracket back into the chassis.
3. Secure the hard drive bracket to the chassis with the two screws.
4. Connect the ribbon and DC power cables to the hard drive.

4U Central Station (System Hard Drive)

1. Install the System hard drive into the hard drive bracket and secure with the four screws.
2. Install the hard drive bracket into the chassis and secure with two screws.
3. Connect the ribbon and DC power cables to the hard drive.

4U Central Station (CD-ROM and Floppy Drive)

1. Install the CDROM and Floppy drive into the drive bracket and secure each with the four screws.
2. Install the hard drive bracket into the chassis and secure with four screws.
3. Connect the ribbon and DC power cables to the CD-ROM and Floppy drive.

4U Central Station (Full Disclosure Drives)

1. Install each Disclosure drive into the hard drive bracket and secure with the four screws.
2. Install the hard drive bracket into the chassis and secure with four screws.
3. Connect the ribbon and DC power cables to the hard drive.

2.7.4 Auxiliary Fan

Tower Cases (Pentium II Motherboards)

1. Connect the DC power connector to the fan.
2. Verify that the label on the fan is facing the rear of the chassis, which indicates the airflow is blowing out.
3. Secure the fan to the rear chassis with the four (4) screws.

2.7.5 CMOS Battery Replacement (BT1)

Locate and remove the existing battery from the motherboard and replace it with a new CR 2032 battery (3V). The positive terminal (+) should be visible. After battery replacement, verify/set up the CMOS per the Panorama Motherboard CMOS Setup/Verification information on page 7-2.

2.7.6 Closing the Unit

Tower Cases (Pentium II Motherboards)

1. Depending on the case style install the top and side covers and secure it with four (4) or six (6) screws.
2. Install the EMI shield onto the front cover and snap the front cover onto the chassis.

2.7.7 Rebooting and Testing the System

1. Reconnect the cables to the Central Station, except for the Patient Network and Central Network (CAT 5) cables. See the section, "Connections and Configuration", in this manual.

NOTE: Do not turn on the system without the Quad I/O serial cable (P/N 0012-00-1257) connected to the Central Station (only applies to Tower Cases).

2. Install the keyboard and mouse. Turn the monitor and tower on.
3. If the system hard drive has been replaced, the operating software must be reloaded. Use the instructions included with the system software CDs to load the software and configure the system. If the instructions are not available, contact your local Service Representative or Technical Support Department.

NOTE: There are separate versions of software for the Central Station and Panorama Wireless Telemetry Server.

4. If one or both of the full disclosure drives have been replaced, the system performs a selftest and eventually stops at the FastTrak66™ Bios Version Screen (shown below).

NOTE: Step 4 only applies to Tower Cases (software revision 7.XX and below).

NOTE: If a drive has not been replaced, skip to step 6.

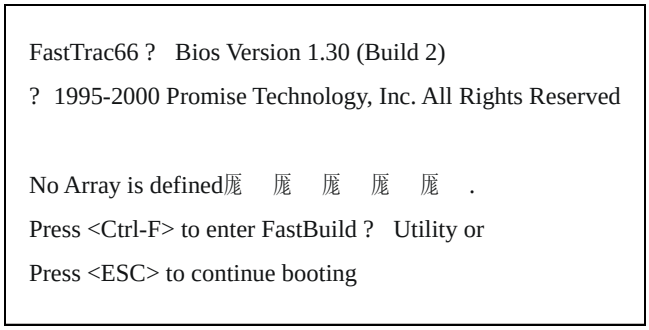
FastTrac66 ? Bios Version 1.30 (Build 2)
? 1995-2000 Promise Technology, Inc. All Rights Reserved
No Array is defined庞 庞 庞 庞 庞 .
Press <Ctrl-F> to enter FastBuild ? Utility or
Press <ESC> to continue booting

FIGURE 2-13 FastTrac66 Bios Version Screen

If a drive has been replaced, you must create a new Array.

a. Simultaneously press the **Ctrl** and **F** keys. The Main Menu appears.

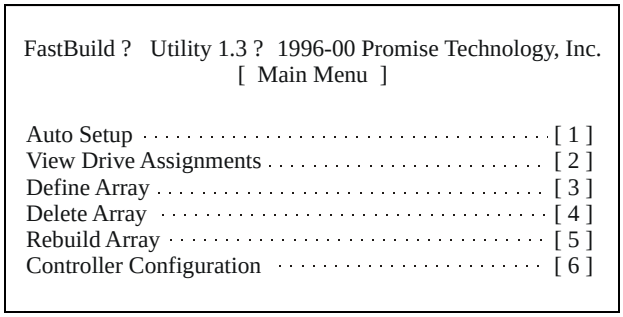
FastBuild ? Utility 1.3 ? 1996-00 Promise Technology, Inc.
[Main Menu]
Auto Setup [1]
View Drive Assignments [2]
Define Array [3]
Delete Array [4]
Rebuild Array [5]
Controller Configuration [6]

FIGURE 2-14 FastBuild Utility Main Menu

b. Press **[1] Auto Setup**. The Auto Setup Options Menu appears.

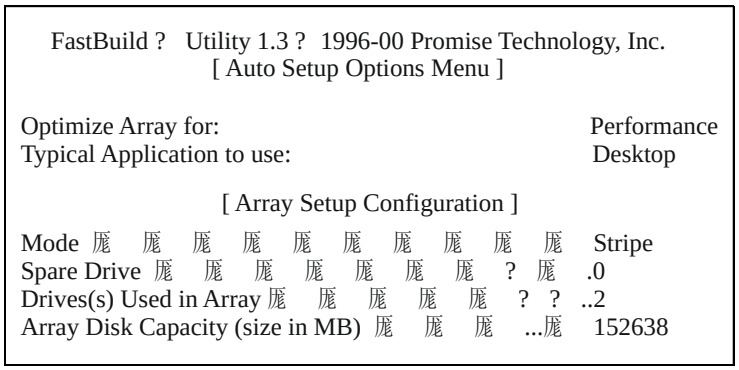
FastBuild ? Utility 1.3 ? 1996-00 Promise Technology, Inc.
[Auto Setup Options Menu]
Optimize Array for: Performance
Typical Application to use: Desktop
[Array Setup Configuration]
Mode Stripe
Spare Drive .0
Drives(s) Used in Array ..2
Array Disk Capacity (size in MB) 152638

FIGURE 2-15 Auto Setup Options Menu

c. Simultaneously Press the **Ctrl** and **Y** keys to save. If the Array has been successfully created, a message appears in the center of the Array Setup Configuration screen.

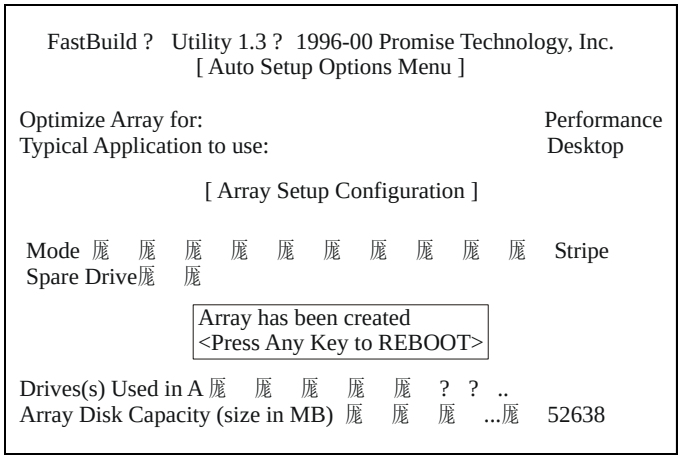
FastBuild ? Utility 1.3 ? 1996-00 Promise Technology, Inc.
[Auto Setup Options Menu]
Optimize Array for: Performance
Typical Application to use: Desktop
[Array Setup Configuration]
Mode Stripe
Spare Drive
Array has been created
<Press Any Key to REBOOT>
Drives(s) Used in A
Array Disk Capacity (size in MB) 52638

FIGURE 2-16 Array Setup Configuration Screen

After the array is successfully completed, it still must be formatted and configured.

5. Press any key to reboot the system.

Formatting the Disclosure Drive

1. Enter the Maintenance Mode on the Panorama Central Station by holding down the **Shift** key after the Microsoft Windows NT Version banner is displayed on the blue screen (see below).

```
Microsoft ?  Windows NT ®  Version 4.0 Build 1381: Service Pack (6)
1 System Processor [512 MB Memory]
```

FIGURE 2-17 Windows Version Banner

Continue holding the **Shift** key until the Logon Information window is displayed.

2. Log on with the following User name and Password:

LOGON INFORMATION	
User name:	swadmin
Password:	dscpswadmin

3. Click **OK**.

4. Click **OK** on the Registry Editor window.

The Windows Desktop should now display on the monitor.

Partition and Format Disk 1 (Disclosure Hard Drive)

Run the Administrator Tool Disk Administrator.

1. Press **Start** in the lower left corner of the display.

2. Select **Programs.**

3. Select **Administrative Tools.**

4. Select **Disk Administrator.** A Disk Administrator information window appears on the screen.

5. Press **OK** to update the System Configuration. A Confirmation information window appears.

6. Select **Yes** to write a signature on Disk 1.

a. Click on **the free space area of Disk 1**.

b. Go to the **Partition** menu, click **Create**.

c. Verify that the value for **Create partition of size** equals the full size of Disk 1 (152633 MB), then click **OK**.

d. Click **Yes** when a message appears prompting you to confirm the creation of another primary partition because the partition could not be recognized by MS-DOS.

e. On the **Partition** menu, click **Commit Changes Now**, and then click **Yes** to save the changes.

f. Click **OK** when Disk Administrator informs you that the disks were updated successfully and advises you to create a new Emergency Repair Disk.

g. Select the newly-created partition.

h. On the **Tools** menu, click **Format**.

i. In the Format dialog box, select **NTFS** file system, and then specify the following:

- To name the partition, type ''DBData'' for the Volume Label.
- To scan for bad sectors in the partition during formatting, do a Full Format.
- Do not check the **Quick Format** or **Enable Compression** boxes in the Format Options window.

j. Click **Start** to initiate the format request. A message warns you that all data on the disk will be erased. Click **OK**.

k. Click **OK** when the Format Complete message appears. Close the format window. The format process takes approximately 40 minutes.

l. Verify Disk 1 is properly formatted:

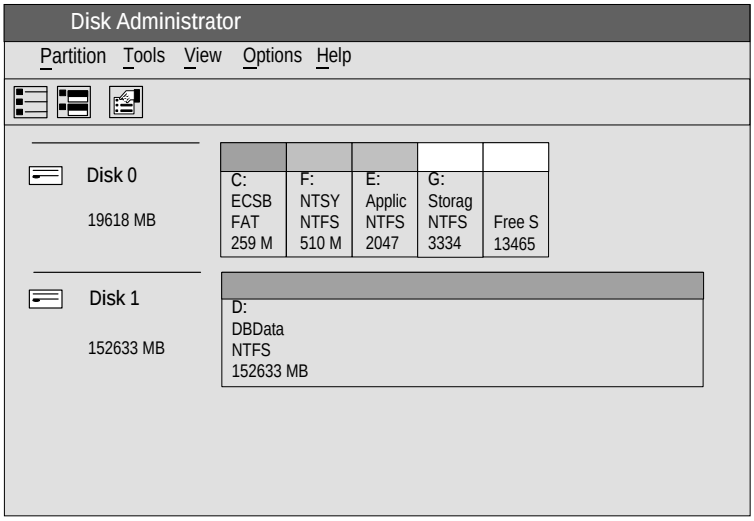

FIGURE 2-18 Disk Administrator Window

m. Close the Disk Administrator window.

n. Double-click the My Computer icon. Verify that Drive D: (DBData) is shared. If the drive is not shared, right click on the drive icon. Click on **Sharing** (the window below appears). Select **Shared As**. Verify that the Shared name is D. Verify user limit is set to **Maximum Allowed**. Click on **Apply** to save your changes. Click on **OK** to exit.

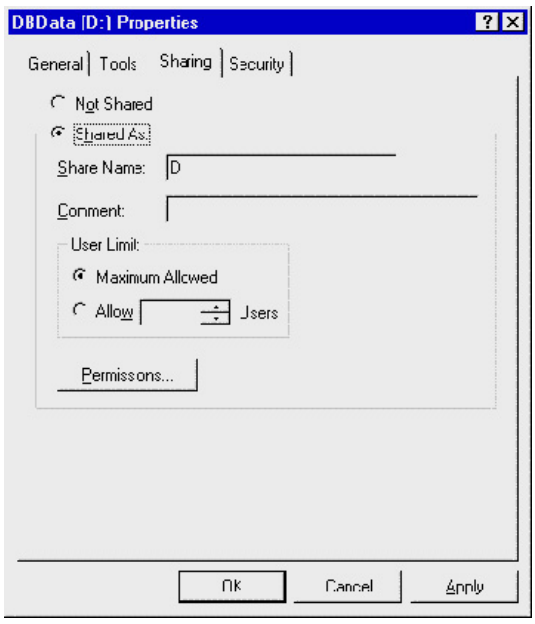

FIGURE 2-19 DBData Properties Window

Finishing

1. Double-click on the **System Config** icon.
2. Press the **Reset Patient Data** button.
3. Press the **Factory Default** button.
4. Press the **Save** button.

Restart the Panorama

1. After configuration, return the unit to operation and verify proper communication from the bedside monitors.

3.0 *Parts Replacement*

3.1 Introduction 3-2
3.2 Available Replacement Parts and Assemblies 3-2
3.3 Product Variations 3-2
3.4 Exchange Program 3-2
3.5 Parts Pricing Information 3-2
3.6 Ordering Information 3-3

3.1 Introduction

This section of the service manual contains a list of replacement parts for the Panorama Patient Monitoring Network.

3.2 Available Replacement Parts and Assemblies

Replacement parts at a board or assembly level are available. In most cases, individual components on boards and assemblies are not available. Contact the Service Department or your local authorized Service Representative for additional details.

3.3 Product Variations

Product variations, due to differences in line voltages or option differences, may require different components. These variations are reflected, where necessary, on the parts lists.

3.4 Exchange Program

An exchange program for many circuit boards and assemblies is available. This program provides the most expedient method of servicing the equipment. A standard charge for this service is made. Contact the National Repair Center in Mahwah, New Jersey for details concerning this program.

Panorama printed circuit boards make extensive use of multi-layer and surface-mount technology. Individual component replacement is not recommended on these boards. Board exchange or replacement is the most efficient method of repair for these types of assemblies.

Circuit board and assemblies that show evidence of improper repair techniques and that are damaged in the process are not considered for exchange. Damaged boards are invoiced at full value and no exchange credit is applied.

3.5 Parts Pricing Information

Current replacement parts and exchange charges are determined by contacting the Order Entry Department.

3.6 Ordering Information

Please follow these guidelines when ordering replacement items for the Panorama Patient Monitoring Network.

1. Include the unit's model and serial number.
2. Include the software part number and revision.
3. Include the part number exactly as it appears in the Parts List.
4. Include the description of the part.

NOTE: Mindray DS USA, Inc. maintains a policy of continuous development of product improvement and reserves the right to change materials, specifications, and prices without notice.

The following table lists the parts and part numbers associated with the Central Station Tower.

DESCRIPTION	PART NUMBER
Power Supply (2U Server, 2U Central)	0014-00-0062-01
Power Supply (Tower 4U Central)	0014-00-0214-03
AGP Display Board	0671-00-0220-02
Motherboard Pentium 4 (2U Central Station)	0671-00-0052-01
Motherboard Pentium II (4U Central Station)	0671-00-0174-02
Serial Touch Screen Board	0671-00-0179
Riser Card PCI/AGP/PCI Pentium 4 MB	0671-00-0054-01
Riser Card PCI/AGP/PCI Pentium II MB	0671-00-0054-02
Hard Drive 200 GB (Pentium 4 Central only)	0992-00-0204-10
Network Interface Card (Tower Case and Wireless Telemetry Server)	0671-00-0178-04
RAID Controller	0671-00-0182-03
CD-RW	0992-00-0178-01
System Hard Drive	0992-00-0084-06
Floppy Disk Drive	0992-00-0121
Disclosure Hard Drive(s) (Tower and 4U Central Stations)	0992-00-0084-06
TIM PCI Board (608 Telemetry Server only)	0670-00-0744-01
CMOS Battery	0146-00-0078
Auxiliary Fan (Tower Case Only)	0119-00-0205-01
Cable, IDE Drive	0012-00-1228
Cable, Floppy Drive	0012-00-1354
AC Power Cord (110V Domestic)	0012-25-0001
AC Power Cord (220V Intl)	0012-25-0002
AC Power Cord (220V UK)	0012-25-0003
Keyboard (PS/2)	0992-00-0108
Mouse (PS/2)	0992-00-0233-01
Cable Touchscreen	0012-00-1257
Patch Cable, 10', CAT 5E cross pinned	0012-00-1392-05

DESCRIPTION	PART NUMBER
Patch Cable, 6', straight pinned	0012-00-1274-01
Patch Cable, 1', straight pinned	0012-00-1274-04
Patch Cable, 2', straight pinned	0012-00-1274-05
Patch Cable, 3', straight pinned	0012-00-1274-06
Patch Cable, 10', straight pinned	0012-00-1274-07
Cable, serial interface (touch screen)	0012-00-1306-01
Cable, audio 3.5 mm, stereo, 6'	0012-00-1310
Speakers	0992-00-0107
Telepack 608 Programming Cable	0012-00-1521-01
ESD Protector Adapter	0137-00-0001-01
Telepack 608 Programming Kit	0020-00-0485-01
Telepack 608 Programming Cable	0012-00-1521-01
3.3 volt DC Power Supply	0014-00-0066-01
Instrument Radio 608 Programming Kit	0020-00-0486-01
Instrument Radio Programming Cable	0012-00-1541-01
5.0 volt DC Power Supply	0014-00-0066-10
ESD Protector Adapter	0137-00-0001-01

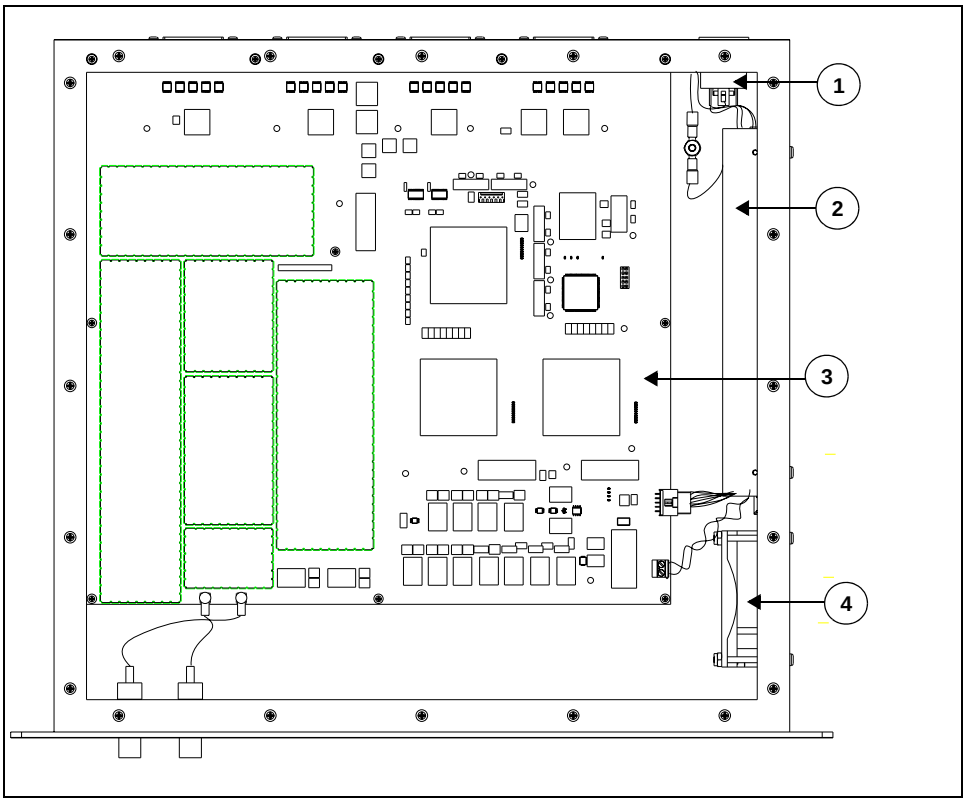

FIGURE 3-1 Panorama Wireless Transceiver Components (Internal Top View)

ITEM	DESCRIPTION	PART NUMBER
1	Fuse GMA 2.5A 250V	0159-00-0055-07
2	Power Supply	0014-00-0060-02
3	TIM Radio Transceiver BD	0670-00-0745-01
4	Fan	0119-00-0206

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4.0 *Calibration*

There is no internal calibration for Panorama® Central Station components.

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5.0 *Preventative Maintenance*

5.1 Display Monitors 5-2
5.2 Central Station Chassis and Wireless Telemetry Server Chassis .. 5-3
5.3 Uninterruptible Power Supplies (UPS) 5-4
5.4 Panorama Patient and Central Networks 5-4

5.1 Display Monitors

The monitor panel and housing should be cleaned as required, but at least semi-annually.

The following internal cleaning procedures should only be performed by a trained, qualified electronic technician.

NOTE: Never use an abrasive glass cleaner containing highly concentrated ammonia and strong base chemicals since they damage the surface treatment.

WARNING: Do not clean the monitor while it is on and/or plugged in.

5.1.1 CRT Display

Turn the AC power off and unplug the AC line cord and all other cables from the rear panel.

Clean the exterior of the monitor case with a lightly moistened cloth. Do not sterilize the monitor with gas or other sterilization procedures.

Internal Cleaning - The monitor should be vacuumed yearly (at a minimum) to minimize the potential of an electrical short.

5.1.2 LCD Display

Clean the cabinet and controls with a lightly moistened soft cloth.

5.1.3 Care and Cleaning of the Touch Screen

For the best performance, it is recommended that the touch screen on the Panorama display(s) be kept clean. You can use any standard glass cleaner to clean the screen. Always remember, however, to use a cloth or towel to apply the cleaner. Glass cleaner sprayed directly on a display could possibly leak inside a non-sealed unit and cause damage.

Remove fingerprints and stains by using a liquid lens cleaner and a soft cloth.

To prevent scratches on the front panel of the display screen, observe the following precautions when cleaning:

- DO NOT use abrasive cleaning materials to clean a touch screen.
- DO NOT wipe a dry screen.
- DO NOT use alcohol or chlorinated hydrocarbon solvents.
- Use a fine soft-hair brush to carefully brush away dust and dirt particles.
- Use a soft sponge moistened with cleaner solution to wipe the touch screen clean.

5.2 Central Station Chassis and Wireless Telemetry Server Chassis

The following internal cleaning procedures should only be performed by a trained, qualified electronic technician.

Turn off the AC power and unplug the AC main power cord and all other cables from the rear panel from the Panorama Central Station before attempting internal cleaning. Clean the monitor in an area free of blowing dust, dirt, and lint.

5.2.1 Cover Removal

Using a Phillips #2 screw driver, remove the four (4) or six (6) screws holding the cover in place. These screws are located on the back of the chassis along the cover's edge, two per side. Once the screws are removed, slide off the cover. Remove the front cover by grasping it by the bottom and lifting up and out.

5.2.2 Cleaning

Use an anti-static vacuum to carefully remove accumulated dust, dirt, and lint from the various internal surface areas. Be careful not to dislodge components, connectors, or printed circuit boards.

5.2.3 Visual Inspection

Perform a visual check to verify that all dust, dirt, and lint has been completely removed, and that connectors and printed circuit boards (PCBs) are properly seated.

5.2.4 Fan

If the power supply fan or the auxiliary fan is noisy or turns too slowly, replace that component. The Power Supply should be replaced as an assembly, rather than replacing its internal fan.

5.2.5 Motherboard Backup Battery Replacement

Locate the battery (BT1) on the motherboard. Remove the battery from its socket and install a new battery, observing the proper polarity. The Tower's CMOS settings will probably have reset to the manufacturer's defaults. They must be changed to meet the requirements of Panorama. This must be accomplished prior to returning the unit to use. See ''Panorama Motherboard CMOS Setup/Verification'' on page 7-2.

5.2.6 Cover Replacement

Snap the front cover back on and slide the cover in place. Then, re-install the four (4) or six (6) screws. Finally, reconnect all external cables.

5.3 Uninterruptible Power Supplies (UPS)

The battery is designed to last for three (3) to five (5) years under normal use.

The UPS performs a self-test automatically every two (2) weeks. If the test fails, the battery LED and remains illuminated.

If this occurs, replace the battery. Instructions for battery replacement are included with the replacement battery. The replacement battery requires four (4) hours to reach a full charge.

5.4 Panorama Patient and Central Networks

Verify the mechanical integrity of all cables, wires, and network connections, including bedside monitors. Replace any frayed or kinked cables. Test electrical integrity with a network analyzer or cable tester.

Check and verify the proper operation of the Status and System LEDs on all switches.

5.5 System Maintenance

5.5.1 Preventative Maintenance

The Preventative Maintenance procedure for the Panorama Patient Monitoring Network will require periodic cleaning, inspection and testing. Use the following tables for each maintenance procedure:

Display Monitors

ACTIVITY AREA	ACTION	TECHNICAL LEVEL	METHOD	SCHEDULE
Screen	Clean	User	See Operators manual Section 11.2	As required
Touch Screen	Calibrate	User	Built-in system software	As required
Case	Clean	Bio-Medical/ Clinical Engineer	Cloth dampened with mild detergent*	Semi-Annually
Cables	Inspect	Bio-Medical/ Clinical Engineer	–	Semi-Annually

Central Station and Telemetry Server

ACTIVITY AREA	ACTION	TECHNICAL LEVEL	METHOD	SCHEDULE
Cooling Fans	Clean	Bio-Medical/ Clinical Engineer	Forced air	Semi-Annually
Power Supply Fans	Clean	Bio-Medical/ Clinical Engineer	Forced air	Semi-Annually
Floppy Drive	Clean	Bio-Medical/ Clinical Engineer	Forced air	Semi-Annually
Connections	Inspect	Bio-Medical/ Clinical Engineer	–	Semi-Annually
Case	Inspect for damage	Bio-Medical/ Clinical Engineer	–	Semi-Annually

Laser Printers

ACTIVITY AREA	ACTION	TECHNICAL LEVEL	METHOD	SCHEDULE
Connections	Inspect	Bio-Medical/ Clinical Engineer	–	Semi-Annually
Case	Clean	Bio-Medical/ Clinical Engineer	Cloth dampened with water *	As required
Printing areas	Clean	Bio-Medical/ Clinical Engineer	Lint-free cloth	When toner cartridge is changed

Telepacks (Ambulatory Transmitters)

ACTIVITY AREA	ACTION	TECHNICAL LEVEL	METHOD	FREQUENCY
Buttons	Test	User	See below	Quarterly
LEDs	Test	User	See below	Quarterly
Case	Inspect for damage	Bio-Medical/ Clinical Engineer	–	Quarterly
Case	Cleaning	User	See Operators manual Section 11.2	
Lead sets	Inspect for damage	User	–	Every use
Lead Sets	Cleaning	User	See Operators manual Section 11.2	

Equipment Racks

ACTIVITY AREA	ACTION	TECHNICAL LEVEL	METHOD	FREQUENCY
General	Clean	Bio-Medical/		
Clinical Engineer	Vacuum area	Semi-Annually		
Network Switches (Fan)	Clean	Bio-Medical/ Clinical Engineer	Forced air	Semi-Annually, or, as required
Cabling	Inspect	Bio-Medical/ Clinical Engineer	–	Annually
UPS	Test	Bio-Medical/ Clinical Engineer	–	Semi-Annually

Battery Replacement information

UNIT	BATTERY TYPE	TYPICAL LIFE
UPS	Lead Acid	3 to 5 Years (normal use)
Motherboard (CMOS)	Lithium Coin cell	10 Years

5.5.2 Telepack Testing

Connect the ECG leads from the Telepack to an ECG simulator.

Self Test

Insert two fresh "AA" batteries into the Telepack, following the diagram on the label on the back of the Telepack and tighten the end cap.

The ECG Lead, Link Status, and Battery Status LEDs will illuminate for approximately five seconds.

If the Link Status or Battery LED fails to illuminate, install new batteries.

If either LED fails to illuminate, replace the Telepack.

Lead Wire Set and Lead LED Testing.

1. Press the Check Button.
2. Verify illumination of all connected Lead LEDs.

   If one or more LEDs are not illuminated, replace the lead wire set and repeat the test.

   If one or more LEDs are still not illuminated, replace the Telepack.

Lead Select Testing (3 Wire Lead Set Only)

1. Press the Lead Select button:

   Verify the Lead LED pattern changes every time the Lead Select button is pressed.

   If the Lead Pattern LEDs do not change, replace the Telepack.

NOTE: This feature does not function with no lead wire set attached or with a 5-wire lead set.

Additional Button Testing

NOTE: The following buttons can only be tested if the Telepack has been admitted to the system.

1. Nurse Call Button (if Nurse Call is active at the Central Station).

   Press the Nurse Call button and verify the Nurse Call message is displayed on the Patient tile for that channel.

2. Attendant Present Buttons (if Nurse Call is active at the Central Station).

   Press the two Attendant Present buttons and verify the nurse call message is cleared from the Patient Tile for that channel.

Record Button

Press the Record Button and verify a printout is completed at the Central Station for that channel.

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6.0 *Connections and Configuration*

6.1 Introduction 6-2

6.1 Introduction

This section of the manual covers the equipment interconnection and software configuration for the Panorama Patient Monitoring Network.

6.1.1 Central Station Local Installation

(Monitors and Central Station located at the nurses' station or Monitoring Room)

- Panorama Central Station(s)
- Panorama Display Monitor(s)
- External Speakers
- Laser Printer HP®4050N/HP4100N/HP4200N
- UPS
- 24 or 48 Port switch
- Shielded CAT5 Patch Cables
- 16 or 32 Port Shielded Patch Panels

6.1.2 Central Station Remote Installation

(Monitors located at the nurses' station and Central Station and equipment rack located away from the nurses' station).

- Panorama Central Station(s)
- Panorama Display Monitor(s)
- External Speakers
- Laser Printer HP4050N/HP4100N/HP4200N
- UPS
- Video Extender
- 24 or 48 Port switch
- Shielded CAT5 Patch Cables
- 16 or 32 Port Shielded Patch Panels
- Equipment Rack
- 12 Port Switch

Use the following figure as a reference for proper component connection to the Central Station.

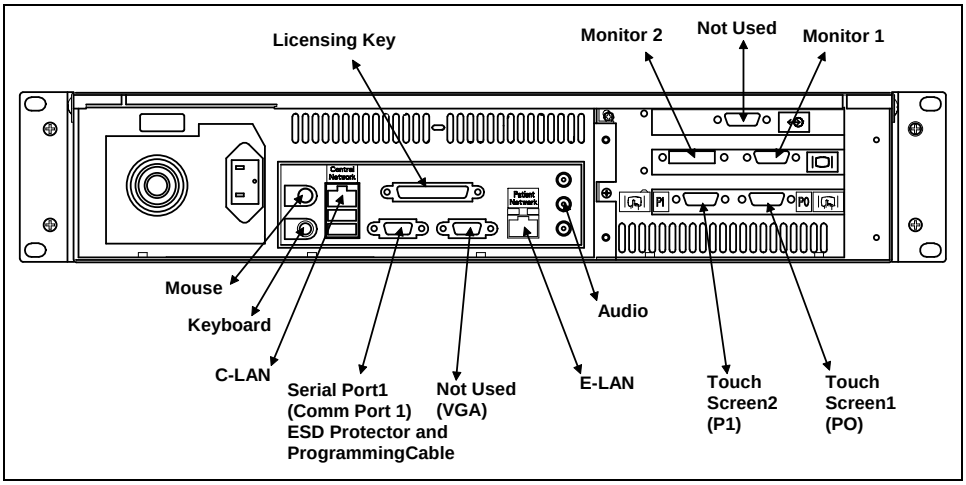

FIGURE 6-1 Panorama Central Station (2U 0998-00-0700-01)

6.1.3 2.4 GHz - ISM Telemetry Installation (Wireless)

The Panorama Wireless Telemetry Server can be located at the nurses' station along with the Central Station or in a remote location such as a closet.

- Panorama Wireless Telemetry Server
- Instrument Transceivers
- 24 Port switch for Wireless Telemetry Network

Along with the components listed above, the Telemetry components required are:

- Wireless Network
  - Access Points
  - Antenna
  - CAT 5 Cable (STP)
  - DC Power Distribution System

6.1.4 608MHz WMTS Telemetry Installation (Wireless)

- Panorama Wireless Telemetry Server
- Antenna Network
  - Antenna
  - RG/RG11 Coax
  - RF Splitter

Use the following figure as a reference for proper component connection to the Telemetry Server.

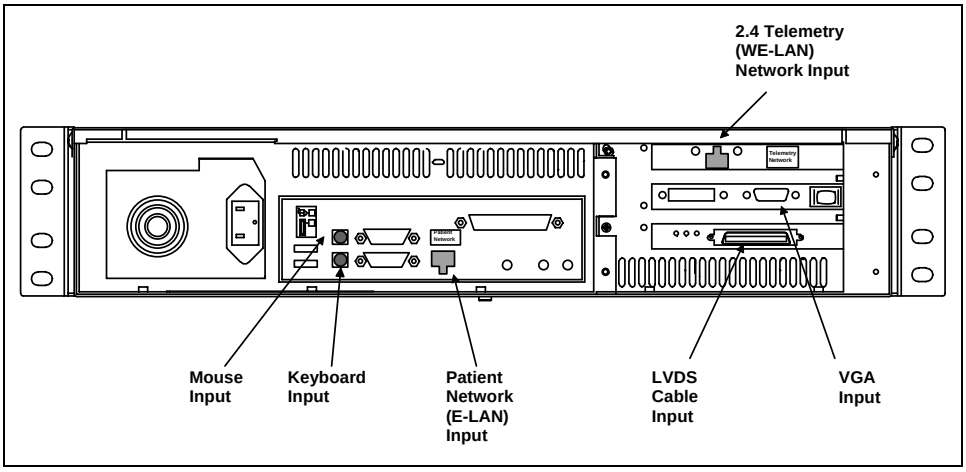

FIGURE 6-2 Telemetry Server (0998-00-0206-XX)

Configuring the Telemetry Server

Turn on the Telemetry Server and display(s).

Enter the Telemetry Server into the Maintenance Mode:

1. Hold down the **SHIFT** key on the keyboard when the Windows NT banner is displayed on the monitor. Do not release the **SHIFT** key until the password Logon screen displays on the monitor.

NOTE: **The Panorama Server boots into its regular operating mode if no keys are held during the system reboot.**

2. The Login information for the Panorama Server's password screen is:

LOGON INFORMATION	
User name:	swadmin
Password:	dscpswadmin

NOTE: **If the login information is incorrectly entered, the Windows NT login failure is displayed.**

3. The Panorama Telemetry Server's Registry Editor dialog box is displayed if the username/password has been entered correctly. Press the **OK** button to close the Registry Editor dialog box and enter the Panorama Server configuration mode.
4. Click on the CB Config Icon. The CB System Configuration Window opens.

Wireless Telemetry Configuration

ELAN IP Address

Assign the Server an appropriate ELAN IP Address (7.6.6.XXX). Verify that no other device (Central Station, beside monitors, Telemetry Server) being assigned to the network has the same ELAN IP Address.

WELAN IP Address

Assign the Server an appropriate WELAN IP Address (7.8.8.XXX). Verify that no other device (Server, Access Point) being assigned to the network has the same WELAN IP Address. Enter the WELAN IP Address into the Equipment Configuration List.

Device ID

Note the Device ID number. This will be assigned to the equipment list of the Panorama Central Station.

608 MHz WMTS Enable

Check the option to enable the WMTS Telemetry. Leave the checkbox blank if you are using ISM (2.4 GHz) telemetry.

608 MHz WMTS Configuration

1. Select the TIM ID number.
2. Select the Band to be used.
3. Deselect any unusable frequency.
4. Select the RF downlink to be used.

Saving the Configuration

After setting the IP addresses, press the **Save** and **Exit** button. After a few seconds, a confirmation window appears. Press the **YES** button to save the settings. The system should reboot at this point. If not,

1. Press the **Start** button in the lower left corner of the screen.
2. Select **Shutdown**.
3. Select the **Shutdown the Computer** option.
4. Press the **Yes** button to shut down the Server.

6.1.5 Bedside Monitor Communication Configuration

In order to communicate to the Panorama Central Station, a bedside monitor must be configured for Ethernet protocol and have an IP Address and Subnet Mask address assigned to it.

Follow the instructions for configuring a bedside monitor for wired or wireless networks.

For Hardwired Ethernet Connection

Each bedside monitor must have a different IP address: 7.6.6.2, 7.6.6.3, etc.

NOTE: The first 3 digits X.X.X. must match the IP address of the ELAN address of the Central Station.

1. Enter the Installation Menu by pressing and holding the **Discharge** key during power up. Release the Discharge key when the Installation Menu appears.
2. Go to the System Information Sub-Menu.
3. Set Enable Network to **Wired**.
4. Enter an IP Address that matches the Patient Network IP Address scheme (e.g., 7.6.6.2). Do not duplicate an existing assigned IP address.
5. Verify that the Subnet Mask ID is **255.255.255.0**.
6. Check the Device ID number. This number will be entered into the Central Station's equipment list.
7. Make sure neither serial port is set to:
   - VISA with Admit, or
   - PatientNet
8. Save the information by pressing **Save Current**.
9. Turn off the monitor.

For 2.4 GHz Wireless Telemetry Connection

Each bedside monitor must have a different wireless IP address: 7.8.8.1, 7.8.8.2, etc.

NOTE: **The first 3 digits (X.X.X.) must match the IP address of the WELAN address of the Telemetry Server.**

1. Enter the Installation Menu by pressing and holding the **Discharge** key during power up. Release the **Discharge** key when the Installation Menu appears.
2. Go to the System Information Sub-Menu.
3. Set Enable Network to **Wireless**.
4. Enter a Wireless IP Address that matches the Telemetry Server address scheme (i.e., 7.8.8.2). Do not duplicate an existing assigned Wireless IP address.
5. Verify that the Wireless Subnet Mask ID is **255.255.255.0**.
6. Enter the Network Name assigned to the Wireless Network.
7. Check the Device ID number. This number will be entered into the Central Station's equipment list (software versions below 8.XX only).
8. Make sure neither serial port is set to:
   - VISA with Admit, or
   - PatientNet
9. Save the information by pressing **Save Current**.
10. Turn off the monitor.

7.0 *Appendix A*

7.1 Panorama Motherboard CMOS Setup/Verification 7-2

7.1 Panorama Motherboard CMOS Setup/Verification

Verify that the VGA and Serial cables are connected between the display(s) and the Central Station. Connect the keyboard and mouse to the Central Station.

NOTE: Do not turn on the system without first connecting the Serial I/O cable (P/N 0012-00-1257) to the Central Station.

Place each of the monitor power switches to the **ON** position. Press and release the Central Station's front panel power switch. Verify that the two LEDs on the front panel are illuminated during the boot-up process. The power LED (green) should be lit continuously. The HD LED (red) will only be lit continuously during the boot-up process and then it will only be lit during hard disk reads.

While the Central Station is performing the memory test, press the **DELETE** key on the keyboard to enter the CMOS Setup menu. Follow the on-screen instructions to move through the menus and setup or verify the CMOS exactly as it appears below. When completed, select **SAVE to CMOS** and **EXIT** to enter these settings into memory.

7.1.1 Tower Cases, 2U Telemetry Server and 4U Central Station

STANDARD CMOS SETUP

Date: Current Date

Time: Current Time

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	SECTOR	MODE
Primary Master:	AUTO	0	0	0	0	0	LBA
Primary Slave:	AUTO	0	0	0	0	0	LBA
Secondary Master:	AUTO	0	0	0	0	0	LBA
Secondary Slave:	AUTO	0	0	0	0	0	LBA

Drive A:	1.44, 3.5 in.
Drive B:	None
Video:	EGA/VGA
Halt On:	All, but keyboard

Base Memory:	640K
* Extended Memory:	523264K
Other Memory:	384K
Total Memory:	524288K

BIOS FEATURES SETUP

VIRUS WARNING:	DISABLED
CPU INTERNAL CACHE	ENABLED
EXTERNAL CACHE:	ENABLED
QUICK POWER ON SELF TEST:	ENABLED
BOOT SEQUENCE:	CD-ROM, C, A
SWAP FLOPPY DRIVE:	DISABLED
BOOT UO FLOPPY SEEK:	DISABLED
BOOT UP NUMLOCK STATUS:	ON
BOOT UP SYSTEM SPEED:	HIGH
GATE A20 OPTIONS:	FAST
TYPEMATIC RATE SETTING:	DISABLED
TYPEMATIC RATE (CHARS/SEC):	6
TYPEMATIC DELAY (MSEC):	250
SECURITY OPTIONS:	SETUP
PCI/VGA PALETTES SNOOP:	DISABLED
MPS VERSION CONTROL FOR OS:	1.4
OS SELECT FOR DRAM > 64 MB:	NON-OS2
VIDEO BIOS SHADOW:	ENABLED
C8000-CBFFF SHADOW:	DISABLED
CC000-CFFFF SHADOW:	DISABLED
D0000-D3FFF SHADOW:	DISABLED
D4000-D7FFF SHADOW:	DISABLED
D8000-DBFFF SHADOW:	DISABLED
DC000-DFFFF SHADOW:	DISABLED
MPC ENABLE:	DISABLED
MPC POST BOOT:	DISABLED
MPB BAUD RATE:	57.6

CHIPSET FEATURES SETUP

AUTO CONFIGURATION:	ENABLED
DRAM SPEED SELECTION:	60ns
MA WAIT STATE:	SLOW
EDO RAS# TO CAS# DELAY:	3
FAST RAS# TO PRECHARGE TIME:	3
EDO DRAM READ BURST:	x333
EDO DRAM WRITE BURST:	x222
DRAM DATA INTEGRITY MODE:	ECC

CHIPSET FEATURES SETUP (CONTINUED)

AUTO CONFIGURATION:	ENABLED
CPU-TO-PCI IDE POSTING:	ENABLED
SYSTEM BIOS CACHEABLE:	DISABLED
VIDEO BIOS CACHEABLE:	DISABLED
VIDEO RAM CACHEABLE:	DISABLED
8 BIT I/O RECOVERY TIME:	1
16BIT I/O RECOVERY TIME:	1
MEMORY HOLE AT 15M-16M:	DISABLED
PASSIVE RELEASE:	ENABLED
DELAYED TRANSATION:	ENABLED
AGP APERATURE SIZE (MB):	64
SDRAM RAS-TO CAS DELAY:	FAST
SDRAM RAS PRECHARGE TIME:	FAST
SDRAM CAS LATENCY TIME:	3
AUTO DETECT DIMM/PCI CLK:	ENABLED
SPREAD SPECTRUM MODULATED:	0.6% (CNTR)
CURRENT SYSTEM TEMP:	CURRENT TEMPERATURE
CHASSIS FAN:	0 RPM (not applicable)
PRIMARY FAN:	CURRENT SPEED
SECONDARY/POWER FAN:	0 RPM (not applicable)
IN0(V):	CURRENT VOLTAGE (Typically between 2.25-2.75 Volts)
IN1(V):	CURRENT VOLTAGE (Typically 2.0 Volts)
IN2(V):	CURRENT VOLTAGE (Typically between 2.95-3.65 Volts)
IN3(V):	CURRENT VOLTAGE (Typically between 4.75-5.25 Volts)
IN4(V):	0 volts (not applicable)
IN5(V):	CURRENT VOLTAGE (Typically between -10.7 and -13.2 Volts)
IN6(V):	CURRENT VOLTAGE (Typically between -4.5 and -5.5 Volts)

POWER MANAGEMENT SETUP

POWER MANAGEMENT:	DISABLED
PM CONTROL BY APM:	NO
VIDEO OFF METHOD:	V/H SYNC+BLANK
VIDEO OFF AFTER:	STANDBY
MODEM USE IRQ:	NA
DOZE MODE;	DISABLED
STANDBY MODE:	DISABLED
SUSPEND MODE:	DISABLED
HDD POWER DOWN:	DISABLED
THROTTLE DUTY CYCLE:	62.5%
ZZ ACTIVE IN SUSPEND:	DISABLED
VGA ACTIVE MONITOR:	ENABLED
SOFT-OFF BY PWR-BTTN:	INSTANT-OFF
CPU FAN OFF IN SUSPEND:	ENABLED
IRQ 8 BREAK SUSPEND:	DISABLED

**** RELOAD GLOBAL TIMER EVENTS ****

IRQ(3-7, 9-15), NMI:	ENABLED
PRIMARY IDE 0:	DISABLED
PRIMARY IDE 1:	DISABLED
SECONDARY IDE 0:	DISABLED
SECONDARY IDE 1:	DISABLED
FLOPPY DISK:	DISABLED
SERIAL PORT:	ENABLED
PARALLEL PORT:	DISABLED

PNP/PCI CONFIGURATION

PNP OS INSTALLED:		NO
RESOURCES CONTROLLED BY:		MANUAL
RESET CONFIGURATION DATA:		DISABLED
IRQ-3	ASSIGNED TO:	PCI/ISA PnP
IRQ-4	ASSIGNED TO:	PCI/ISA PnP
IRQ-5	ASSIGNED TO:	PCI/ISA PnP
IRQ-7	ASSIGNED TO:	PCI/ISA PnP
IRQ-9	ASSIGNED TO:	PCI/ISA PnP
IRQ-11	ASSIGNED TO:	PCI/ISA PnP

PNP/PCI CONFIGURATION (CONTINUED)

PNP OS INSTALLED:		NO
IRQ-12	ASSIGNED TO:	PCI/ISA PnP
IRQ-14	ASSIGNED TO:	PCI/ISA PnP
IRQ-15	ASSIGNED TO:	PCI/ISA PnP
DMA-0	ASSIGNED TO:	PCI/ISA PnP
DMA-1	ASSIGNED TO:	PCI/ISA PnP
DMA-3	ASSIGNED TO:	PCI/ISA PnP
DMA-5	ASSIGNED TO:	PCI/ISA PnP
DMA-6	ASSIGNED TO:	PCI/ISA PnP
DMA-7	ASSIGNED TO:	PCI/ISA PnP
PCI IDE IRQ MAP TO:		PCI-AUTO
PRIMARY IDE INT#:		IDE INT#: A
SECONDARY IDE INT#:		IDE INT#: B
USED MEM BASE ADDR:	NA	

INTEGRATED PERIPHERALS

IDE HDD BLOCK MODE:	ENABLED
IDE PRIMARY MASTER PIO:	AUTO
IDE PRIMARY SLAVE PIO:	AUTO
IDE SECONDARY MASTER PIO:	AUTO
IDE SECONDARY SLAVE PIO:	AUTO
IDE PRIMARY SLAVE UDMA:	AUTO
IDE SECONDARY MASTER UDMA:	AUTO
IDE SECONDARY SLAVE UDMA:	AUTO
ON-CHIP PRIMARY PCI IDE:	ENABLED
ON-CHIP SECONDARY PCI IDE:	ENABLED
ONBOARD PCI SCSI CHIP:	DISABLED
USB KEYBOARD SUPPORT:	DISABLED
WATCHDOG TIMER:	DISABLED
WDT TERMINAL VALUE:	7
KBC INPUT CLOCK:	8 MHZ
ONBOARD FDC CONTROLLER:	ENABLED
ONBOARD SERIAL PORT 1:	3F8/IRQ4
ONBOARD SERIAL PORT 2:	2F8/IRQ3
UR2 MODE:	STANDARD
ONBOARD PARALLEL PORT:	378/IRQ7

INTEGRATED PERIPHERALS (CONTINUED)	
PARALLEL PORT MODE:	SPP
ONBOARD AUDIO CHIP:	ENABLED

7.1.2 2U Central Station

BIOS SETUP Pentium 4 Motherboard

STANDARD CMOS SETUP	
Date (mm:dd;yy)	Set to current Date
Time	Set to current Time
IDE Primary Master	** [ST380021A]
IDE Primary Slave	** [ST3200822A]
IDE Secondary Master	** [LITE-ON LTR-52246S] (or LTR-52327S)
IDE Secondary Slave	None
Drive A	1.44M, 3.5 in.
Drive B	None
Video	EGA/VGA
Halt On	All, But Keyboard
Base Memory	640K
Extended Memory	1047552K
Total Memory	1048576K

ADVANCED BIOS FEATURES	
Virus Warning	Disabled
CPU L1 and L2 Cache	Enabled
Quick Power On Self Test	Enabled
First Boot Device	Floppy
Second Boot Device	CDROM
Third Boot Device	HDD-0
Boot Other Device	Enabled
Swap Floppy Drive	Disabled
Boot Up Floppy Seek	Disabled
Boot Up Numlock Status	On
Gate A20 Option	Fast
Typematic Rate Setting	Disabled
X Typematic Rate (chars/Sec)	6
X Typematic Delay (Msec)	250
Security Option	Setup

ADVANCED BIOS FEATURES (CONTINUED)

APIC Mode	Enabled
MPS Version Control for OS	1.4
OS Select For DRAM>64MB	Non-OS2
Report No FDD For WIN 95	Yes
Small Logo (EPA) Show	Enabled

ADVANCED CHIPSET FEATURES

DRAM timing Selectable	By SPD
X CAS Latency Time	2.5
X Active to Precharge Delay	7
X DRAM RAS# to CAS# Delay	3
X DRAM RAS# Precharge	3
Memory Frequency For	AUTO
System BIOS Cacheable	Enabled
Video BIOS Cacheable	Enabled
Delay Transaction	Enabled
Delay Prior to Thermal	16 Min
AGP Aperture Size (MB)	64
ICH4 LAN	Enabled
	** On-Chip VGA Setting **
On-Chip VGA	Enabled
On-Chip Frame Buffer	8 MB
Boot Display	Auto

Integrated Peripherals

On-Chip Primary PCI IDE	Enabled
IDE Primary Master PI0	Auto
IDE Primary Slave PI0	Auto
IDE Primary Master UDMA	Auto
IDE Primary Slave UDMA	Auto
On-Chip Secondary PCI IDE	Enabled
IDE Secondary Master PI0	Auto
IDE Secondary Slave PI0	Auto
IDE Secondary Master UDMA	Auto
IDE Secondary Slave UDMA	Auto
USB Controller	Enabled
USB 2.0 Controller	Enabled

Integrated Peripherals (Continued)

USB Keyboard Support	Disabled
AC97 Audio	Auto
Init Display First	PCI Slot
IDE HDD block Mode	Enabled
POWER ON Function	BUTTON Only
X Hot Key Power On	Ctrl-F1
Onboard FDC Controller	Enabled
Onboard Serial Port 1	3F8/IRQ4
Onboard Serial Port 2	2F8/IRQ3
UART Mode Select	Normal
Onboard Parallel Port	378/IRQ7
Parallel Port Mode	SPP
PWRON After PWR-Fail	Off
Onboard Serial Port 3	3E8H
Serial Port 3 Use IRQ	IRQ5
Onboard Serial Port 4	2E8H
Serial Port 4 Use IRQ	IRQ10
Digital I/O	Disabled

POWER MANAGEMENT SETUP

ACPI Function	Enabled
Power Management	User Defined
Video Off Method	V/H Sync+ Blank
Video Off In Suspend	Yes
Suspend Type	Stop Grant
Modem Use	3
Suspend Mode	Disabled
HDD Power Down	Disabled
Soft-Off by PWR-BTTN	Instant-Off
CPU THRM-Throttling	50.0%
Wake-Up by PCI Card	Disabled
Power On by Ring	Disabled
Resume by Alarm	Disabled
X Date (of Month) Alarm	0
X Time (hh:mm:ss) Alarm	0:0:0
	Reload Global Timer Events
Primary IDE 0	Enabled

POWER MANAGEMENT SETUP (CONTINUED)

Primary IDE 1	Enabled
Secondary IDE 0	Enabled
Secondary IDE 1	Enabled
FDD, COM, LPT Port	Enabled
PCI PIRQ[A-D]#	Enabled

PNP/PCI CONFIGURATIONS

PNP OS Install	No
Reset Configuration Data	Disabled
Resources Controlled By	Auto(ESCD)
X IRQ Resources	
X DMA resources	
PCI/VGA Palette Snoop	Disabled

PC HEALTH STATUS

CPU Warning Temperature	Disabled
System Temp	**
CPU Temp	**
Chassis Temp	**
CPU FAN Speed (FAN1)	**
System FAN Speed (FAN2)	0 RPM
Chassis FAN Speed (FAN3)	0 RPM
Vcore (V)	**
VCC3(V)	**
+5(V)	**
+12(V)	**
-12(V)	**
VBAT	**
5VSB(V)	**
Shutdown Temperature	Disabled
CPU Fan Failure Warning	Enabled
Sys. Fan Failure Warning	Disabled
Aux. Fan Failure Warning	Disabled

FREQUENCY/VOLTAGE CONTROL	
Auto Detect PCI Clk	Disabled
Spread Spectrum Modulated	Enabled

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